	1980
4. St. Louis, MO*,**,***,****	
White total live births	3,380
White infant deaths	39
White IMR	11.8
Black total live births	4,832
Black infant deaths	108
Black IMR	22.5
5. Philadelphia, PA*,**,***	
White total live births	12,492
White infant deaths	168
White IMR	13.5
Black total live births	12,411
Black infant deaths	280
Black IMR	22.6
6. Newark, NJ	
White total live births	2,169
White infant deaths	26
White IMR	12.4
Black total live births	3,854
Black infant deaths	89
Black IMR	23.3
7. Jackson, MS*,***	
White total live births	1,895
White infant deaths	15
White IMR	8.4
Black total live births	3,001
Black infant deaths	68
Black IMR	22.7
8. New Orleans, LA***	
White total live births	2,873
White infant deaths	33
White IMR	11.8
Black total live births	7,478
Black infant deaths	174
Black IMR	23.4

	1980
9. Houston, TX*,**,***,****	
White total live births	15,289
White infant deaths	171
White IMR	11.2
Black total live births	10,161
Black infant deaths	170
Black IMR	16.8
10. Greensboro, NC*,	
White total live births	1,183
White infant deaths	10
White IMR	8.5
Black total live births	960
Black infant deaths	9
Black IMR	10.4
11. Detroit, MI	
White total live births	5,971
White infant deaths	66
White IMR	11.2
Black total live births	
Black infant deaths	
Black IMR	25.1
12. Dallas, TX*,**,***,****	
White total live births	7,228
White infant deaths	78
White IMR	10.9
Black total live births	6,421
Black infant deaths	118
Black IMR	18.4
13. Atlanta, GA*,***	
White total live births	2,570
White infant deaths	30
White IMR	11.7
Black total live births	6,758
Black infant deaths	135
Black IMR	20.1

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	1980
14. Chicago, IL*,***,****	
White total live births	27,224
White infant deaths	402
White IMR	14.8
Black total live births	30,492
Black infant deaths	789
Black IMR	25.9
15. Baltimore, MD*,***,****	
White total live births	4,129
White infant deaths	52
White IMR	12.6
Black total live births	8,191
Black infant deaths	172
Black IMR	21.0
16. Miami, FL*,**,***	
White total live births	14,345
White infant deaths	147
White IMR	10.3
Black total live births	8,267
Black infant deaths	138
Black IMR	16.8
17. Las Vegas, NV*	
White total live births	6,391
White infant deaths	56
White IMR	8.9
Black total live births	1,139
Black infant deaths	25
Black IMR	22.8
18. Jacksonville, FL*,**,***	
White total live births	6,618
White infant deaths	66
White IMR	10.0
Black total live births	3,335
Black infant deaths	66
Black IMR	19.8

	1980
19. Norfolk, VA*	
White total live births	2,765
White infant deaths	43
White IMR	15.9
Black total live births	2,256
Black infant deaths	32
Black IMR	14.2
20. Cleveland, OH*	
White total live births	5,281
White infant deaths	86
White IMR	16.3
Black total live births	5,461
Black infant deaths	162
Black IMR	29.7
21. San Diego, CA*	
White total live births	17,791
White infant deaths	275
White IMR	15.5
Black total live births	2,660
Black infant deaths	56
Black IMR	21.4
22. Cincinnati, OH*	
White total live births	4,063
White infant deaths	49
White IMR	12.3
Black total live births	2,970
Black infant deaths	54
Black IMR	18.2
23. Toledo, OH*	
White total live births	4,515
White infant deaths	49
White IMR	10.9
Black total live births	1,654
Black infant deaths	36
Black IMR	21.8

	1980
24. Columbus, OH*	
White total live births	7,058
White infant deaths	71
White IMR	10.1
Black total live births	3,007
Black infant deaths	49
Black IMR	16.6
25. Oakland, CA*	
White total live births	9,663
White infant deaths	98
White IMR	10.2
Black total live births	4,036
Black infant deaths	64
Black IMR	15.9
26. Phoenix, AZ*	
White total live births	24,317
White infant deaths	311
White IMR	12.8
Black total live births	1,372
Black infant deaths	27
Black IMR	20.4
27. Tucson, AZ*	
White total live births	7,925
White infant deaths	57
White IMR	7.2
Black total live births	382
Black infant deaths	6
Black IMR	18.3
28. Pittsburg, PA*	
White total live births	3,250
White infant deaths	35
White IMR	10.8
Black total live births	1,846
Black infant deaths	54
Black IMR	29.3
29. Nashville, TN*	
White total live births	5,134
White infant deaths	53
White IMR	10.5

		1980
	Nashville, TN (Continued)	
	Black total live births	2,205
	Black infant deaths	37
	Black IMR	17.2
30.	Birmingham, AL*	
	White total live births	6,151
	White infant deaths	68
	White IMR	11.1
	Black total live births	4,772
	Black infant deaths	95
	Black IMR	20.1
31.	Milwaukee, WI*	
	White total live births	7,789
	White infant deaths	90
	White IMR	11.6
	Black total live births	3,934
	Black infant deaths	73
	Black IMR	18.8
32.	Louisville, KY*	
	White total live births	8,603
	White infant deaths	88
	White IMR	10.3
	Black total live births	2,596
	Black infant deaths	57
	Black IMR	22.3
33.	Kansas City, MO*	
	White total live births	4,734
	White infant deaths	52
	White IMR	11.0
	Black total live births	2,703
	Black infant deaths	42
	Black IMR	15.9
34.	Oklahoma City, OK*	
	White total live births	5,702
	White infant deaths	86
	White IMR	15.1
	Black total live births	1,524
	Black infant deaths	33
	Black IMR	22.3

	1980
35. Minneapolis, MN	
White total live births	63,067
White infant deaths	611
White IMR	9.7
Black total live births	1,514
Black infant deaths	31
Black IMR	20.5
36. Forthworth, TX	
White total live births	5,921
White infant deaths	71
White IMR	12.0
Black total live births	2,025
Black infant deaths	42
Black IMR	21.2
37. Portland, OR	
White total live births	7,666
White infant deaths	102
White IMR	13.4
Black total live births	797
Black infant deaths	14
Black IMR	17.6
38. San Francisco, CA	
White total live births	3,290
White infant deaths	42
White IMR	12.8
Black total live births	1,610
Black infant deaths	28
Black IMR	17.4
39. San Jose, CA	
White total live births	11,555
White infant deaths	175
White IMR	15.2
Black total live births	1,230
Black infant deaths	14
Black IMR	11.4
40. Los Angeles, CA	
White total live births	42,303
White infant deaths	541
White IMR	12.8

	Los Angeles, CA (Continued)	1980
	Black total live births	18,613
	Black infant deaths	390
3	Black IMR	21.0
4	41. Memphis, TN*	
5	White total live births	6,057
	White infant deaths	69
6	White IMR	11.4
	Black total live births	7,711
7	Black infant deaths	154
	Black IMR	20.0
8		
	42. Atlantic City, NJ	
9		
	White total live births	212
10	White infant deaths	9
	White IMR	42.5
11	Black total live births	384
	Black infant deaths	11
12	Black IMR	31.1
13	43. Youngstown, OH*	
14	White total live births	976
	White infant deaths	11
15	White IMR	11.3
	Black total live births	893
16	Black infant deaths	25
	Black IMR	29.1
17		
	44. San Antonio, TX*,****	
18		
	White total live births	4,812
19	White infant deaths	46
	White IMR	9.6
20	Black total live births	1,169
	Black infant deaths	30
21	Black IMR	26.5
22	45. Richmond, VA***	
23	White total live births	1,264
	White infant deaths	16
24	White IMR	13.4
	Black total live births	2,163
25	Black infant deaths	58
	Black IMR	26.8
26		

The asterisk indicate cities providing Survey data for the following categories:

*City providing low birth weight (LBW) date by race.

**City providing very low birth weight (VLBW) data by race.

***City providing teenage pregnancy data by race.

****City providing prenatal care data by race.

Mr. LEHMAN. Dr. Kennedy.

STATEMENT OF EILEEN KENNEDY, NATIONAL CONSULTANT, INTERNATIONAL FOOD POLICY RESEARCH INSTITUTE AND VISITING PROFESSOR, TUFTS UNIVERSITY SCHOOL OF NUTRITION

Ms. KENNEDY. Thank you. I appreciate the opportunity to appear before you today. I will skip a lot of my written text. It is all in the record.

I tried to provide a historical perspective on the role of nutrition as far as preventive health care, and I cite some of the evidence which was really instrumental in making the link between nutrition and outcome of pregnancy, which came out of what I call the natural experiments during World War II.

Two cases in point were the seige of Leningrad and the famine that took place in Holland during World War II, and what you saw there is basically what heretofore had been a healthy population, because of the limitation on caloric intake, decrease in the overall birth weights in the population. This translated to an increase in the incidence of low birth weight infants, and as the example in Holland shows, the infant mortality tripled as a result of the direct increase in the low birth weight statistics.

This led researchers to consider the possibility of providing supplemental feeding as a means of improving the outcome of pregnancy primarily in women in developing countries. People honed in on the problem of adverse neonatal outcomes being more severe in developing countries and a series of supplemental feeding trials which I believe I have summarized in table 1, showing that it was possible to improve the outcome of pregnancy by supplemental feeding of the woman during prenatal periods.

Studies in places like Guatemala, the study in India, show fairly similar types of findings that birth weight was increased in the area of 40 to 60 grams, but more importantly, that the rates of low birth weight were able to be decreased as a result of the supplemental feeding. Partly, as a result of this, people began thinking about the maternal and child health problem in the United States. A lot of this gave way to the initial planning of the special supplemental program for women, infants, and children, better known as WIC. I think there were a lot of disbelievers in the initial days of the WIC program. There may still be. A lot of the rhetoric we have all heard revolves around the issue of: Would you really expect nutrition would play a very important part as far as overall prenatal care for low-income women in the United States? The line of reasoning being that basically we have an abundant and varied food supply and, therefore, food, per se, is not the limiting factor. I must admit I was probably one of those disbelievers.

As part of the research I was involved with up at Harvard School of Public Health in the mid to late 1970's, we attempted to look at the issue of what impact can be attributed to participation in the WIC program in prenatal patients throughout the State of Massachusetts. My basic hypothesis was that it would be primarily the medical services to which the WIC program was acting as an adjunct to health care that would have the most impact on birth weight of the baby and incidence of low birth weight.

Basically, our thinking was that the food in the WIC program would be acting as a carrot, drawing women into the health care system. What we found in our analyses was that although prenatal care medical services clearly had a benefit—I don't think anybody would argue that—above and beyond the effect we noticed due to medical care services, there was a direct effect on overall birth weight that could be attributed to the amount of food supplementation received by these low-income women.

More importantly—and I want to underscore this point—there was a concurrent decrease in the incidence of low birth weight. A series of studies have corroborated our findings. What we are finding in different areas of the country, studies conducted in Oklahoma, Massachusetts, Tennessee, Louisiana, is that the consistency of finding as far as the effect on low birth weight, is within a very, very close range.

All of these studies are reporting a 30- to 40-percent decrease in the incidence of low birth weight and/or small for gestational age infants. This is much more important than an overall increment in birth weight of 3 to 4 ounces. I think I would be the first to admit if you were just increasing the birth weight of the child, but not having any effect on the more important index of the health of the neonate (i.e., the low birth weight status of that child), it would have much less public health implications. The fact that you are not only changing the central tendency measure, that is, mean birth weight, but you are at the same time decreasing the incidence of low birth weight, has more significant ramifications for the health of the newborn.

I typically get asked why the experience with the WIC program in the United States seems to have been so much more positive than the evidence that is suggested from similar interventions in developing countries. On average you are seeing in places like Guatemala, India, wherever, that you are able to increase birth weight by about 40 to 60 grams.

In the recent U.S. studies we are seeing increments in birth weight of 90 to 110 grams, but the more important finding is fewer low birth weight babies are being born to women who participate in WIC. I think there are several key reasons for the difference in the U.S. experience. One of those is the concept of minimum and maximum level of benefits. In the WIC program, you are providing pregnant women with approximately 900 calories per day.

In the overseas interventions, you are generally talking about caloric intake being increased in the range of 200 to 300 calories. It is a dose-response relationship. In the developing country interventions where they have given a higher caloric intake—the Hyderabad study in India, where they were giving women 700 calories a day plus bed rest, birth weights increased in the range of what we are seeing in the United States and concurrently, a decrease in the incidence of low birth weight.

I suppose an analogy would be if somebody wanted to ride the Washington metro, if it cost 80 cents to ride and you only gave them 20 cents, they might be able to do something with that 20 cents, but they wouldn't be able to ride the metro. It is becoming clear that in order to bring about some of the improvements we are

talking about, there is a minimal level of benefit that needs to be delivered.

In the Guatemala experience, in looking at women in four very low-income villages in Guatemala, the cutoff point seemed to be about 20,000 calories. The benefits accrued to women who had received more than 20,000 calories, approximately 27,000 calories. That is where you began to see statistically significant differences in birth weight and the incidence of low birth weight.

The second issue is that WIC is not just a supplemental feeding program. It really would appropriately be labeled an integrated health nutrition intervention because it stresses food plus tieing into the health care system, plus nutrition education—and again, if you look at the evidence from the series of studies I have reviewed, the most successful prenatal interventions have been ones that provided a judicious mix of health care and food—and I would assume the nutrition education, although we haven't systematically assessed that. In thinking of some of Dr. Ouellette's comments this morning about substance abuse like alcohol and drug abuse, trying to deal with those problems simultaneously with some of the other ones that are nutrition related as well as health care related, makes more sense than a fragmented system of prenatal care.

In our work, we looked at the issue of so the WIC program seems to be having an effect on outcomes of pregnancy, trying to put the issue of ethics aside for a minute and looking at it from the point of view of economics. And we did a very simple calculation, which was looking at just one outcome of pregnancy which, here again was the incidence of low birth weight.

We looked at the incidence of low birth weight of infants born to women participating in WIC and calculated the cost of treating those low birth weight infants, plus the the cost of providing WIC services. We contrasted that with the incidence of low birth weight in women who had not participated in the WIC intervention, and again, I hadn't seen the testimony of other panel witnesses, but our cost effectiveness ratio comes out to be remarkably similar to yours.

We found that for every dollar spent on the WIC program, there was a $3 savings in medical care costs, and I think you can look at it in a very simple way. On average, women in the WIC program we looked at in Massachusetts, the WIC Federal expenditure was $105. This can be contrasted with the cost of one day of neonatal intensive care of $450. So, I don't think it is surprising that we found a 1 to 3 ratio in favor of WIC.

Some other evidence has recently come out which substantiates these findings. A study in Missouri which looked at just medicaid cost savings attributable to WIC. They find a 1:1.42 ratio, in favor of the WIC program. Again, if you don't want to argue on the basis of ethics, I think you can argue on the basis of economics that it is more cost effective to prevent the occurrence of low birth weight rather than to try to treat it after the fact.

None of these analyses have built in the longer term costs associated with the low birth weight, the longer term developmental abnormalities and any of the educational costs that we would be incurring. Our study limited itself to the immediate neonatal period.

The last point that I think is overlooked sometimes, we talk about WIC as being a supplemental feeding program, supplemental to the overall diet. Most of the women in our study were also participating in the food stamp program and it was the food stamp program that was basically allowing them to buy their core diet. WIC foods were supplemental to that. I think again, taking an overall approach to the problem that if the food stamp program had not existed, then WIC would not be supplemental but would have been providing the core diet.

It is amazing in some of the areas we looked at where there is overwhelming positive support for WIC, some of the same policy makers say, but the food stamp program isn't having any effect. There was dual participation in most of our households. I think though, we have not looked specifically at food stamps, that was again providing a large part of the food resources within the household.

I would summarize by saying that both from the developing countries and U.S. experience with WIC, it is possible to prevent some of the adverse neonatal outcomes associated with high-risk pregnancies We find that the risk of low birth weight is higher in certain groups, again no surprise. Teenage prenatals, black women, women with a prior history of having low birth weight infants, and smokers all have a higher risk of neonatal mortality, low birth weight infants.

It also appears from the evidence at hand that the WIC program is serving a disproportionate national share of these high-risk infants. This is in part the reason for its success in improving some of the outcomes of pregnancy.

[Prepared statement of Eileen Kennedy follows:]

PREPARED STATEMENT OF DR. EILEEN KENNEDY, NUTRITION CONSULTANT, INTERNATIONAL FOOD POLICY RESEARCH INSTITUTE, WASHINGTON, D.C.; AND VISITING ASSISTANT PROFESSOR, TUFTS UNIVERSITY SCHOOL OF NUTRITION, MEDFORD, MASS.

Thank you for giving me [1] the opportunity to appear before the Select Committee on Children, Youth and Families. I am currently working with an international research group called the International Food Policy Research Institute and have recently, in conjunction with my colleague Dr. Pinstrup-Andersen, completed a monograph on nutrition interventions in developing countries. The project was sponsored by the Subcommittee on Nutrition of the United Nations and was initiated to provide a summary of what we know has happened as a result of nutrition programs in developing countries. As part of this effort we looked closely at the results of suplementary feedings programs throughout the world. In addition, I am currently working on research for the U.S. Agency for International Development to assess the impact of several types of targeted interventions on child growth and development.

Although most of my current research is related to food policy in developing countries I have also been involved in research on the effect of WIC Supplemental Feedings on prenatal participants. Thus, I've had experience with both international and U.S. Domestic Supplementation Schemes.

Today, I'd like to focus on what we know has happened as a result of these types of nutrition interventions.

The relationship between maternal nutrition and pregnancy outcome has been the subject of numerous studies of the past fifty years. It has been documented that nutrition and prenatal. infant and child health are highly correlated.

Some of the earliest evidence that nutriton was an important influence on neonatal outcome and growth and development came out of experiences in World War II. During the Seige of Leningrad by Germany, birth weights declined significantly due to insufficient food supplies (1). As birth weights declined, there was a concurrent

[1] The testimony reflects the opinion of the author and not necessarily those of IFPRI or Tuft.

increase in infant mortality (2). Similar results were reported during the famine in Holland in 1944-45; during this period, mean birth weights decreased, congenital malformations doubled and infant mortality tripled. Interestingly, a very different situation occurred in England during World War II (3). During the wartime period, Britain gave priority for food rationing to pregnant women. As a result, the rate of still birth decreased from a prewar level of 31 per 1,000 to 28 per 1,000 live births during the war.

Additional clinically based studies further substantiated the linkage between nutrition and the outcome of pregnancy. In 1943, a study conducted by Harvard found that the most positive neonatal outcomes were observed in women whose diets were rated excellent or good by clinic staff (4). The average birth weight of infants delivered by women on excellent or good diets was 8 pounds 8 ounces compared to 7 pounds 7 ounces among women on fair diets. Seventy-nine percent of the 33 infants who died weighed under 5 pounds at birth and sixty-seven percent of infants born to women on poor or very poor diets were either stillbirth, died within 3 days of life, weighed under 5 pounds at birth, were functionally immature or had congenital defects. Only eight percent of the infants born to women on poor diets were classified to be in superior or good condition. In contrast, 94 percent of the infants born to women on good or excellent diets were in superior or good health, whereas only 3 percent were in poor health.

Dieckmann et al (5) confirmed these findings. Of 612 pregnancies which were carefully supervised with adequate nutrition, the incidence of low birth weight (LBW) was 3.3 percent compared to 6.3 percent from women of similar socioeconomic status with poorer diets.

Because of this accumulating evidence that diet improved nutritional status, researchers began conducting controlled field experiments to test the hypothesis that nutritional supplementation would have positive and significant effects on health.

Thompkins (6) in Aberdeen, Scotland observed that caloric intake for low income women was less than the caloric intake for upper class women; mothers of low birth weight babies (less than 2,500 grams) had less of a dietary intake than mothers delivering normal weight babies. The Aberdeen study and similar studies (7) led to the concept that supplementation of diet with calories, protein and other nutrients during pregnancy might significantly improve neonatal outcome in nutritionally vulnerable women. This theory was tested in several studies throughout the world.

A number of studies outside the U.S. have shown that it is possible to improve the outcome of pregnancy through dietary supplementation.

The prenatal diets of 400 low income women were studied in an antenatal clinic in Toronto in 1941 (8). Women whose diets were rated poor were randomly assigned to either a control group given a corn oil placebo or to a treatment group in which a food and vitamin and mineral supplement was given during the last 3 to 4 months of pregnancy. A third group whose diet had been rated as moderately good was given just education classes. The premature births reported in the control group with a poor diet was 8.0 percent compared to 2.2 percent and 3.0 percent in the supplementation and education groups respectively.

From 1949 to 1962, the Montreal Diet Dispersary provided milk, eggs and oranges to low income women (9); as a result birth weights were significantly increased in the supplemental group. The incidence of LBW was 6.9 percent in the treatment group vs. 9.0 percent in the non-treatment group. Even more impressive were the results in teenagers; the LBW rates were 3.3 percent in the treatment group vs. 10 percent in the nonfood group.

A study of 25 women in Hyderabad, India (10) provided 700 kcal and 20 grams protein a day plus bed rest for the last month of pregnancy. Birth weights were 11.5 ounces higher in the women receiving food compared to the control group.

Between 1939 to 1943, 728 women participated in a nutrition program in Oslo, Norway (11). The incidence of LBW was 2.2 percent vs. 4.6 percent in the non-treated group.

Similarly, in Scotland, supplementation evaluations were conducted in the 1960's. Of a control group of 198 unsupplemented women, the LBW rates were 11.1 percent compared to 6.4 percent for the 641 supplemented women.

Similar supplementation studies were conducted in 4 villages in Guatemala (13). Results show the supplemented women had higher mean birth weights than the controls; LBW rates were decreased by one-half in the supplemented group.

In Narangwal, India (14) the most cost-effective measure for reducing infant mortality was supplementation of the diets of expectant mothers.

The findings from these studies are summarized in Table 1. The data from these studies show trends in the same direction; as a result of dietary supplementation neonatal outcome can be improved.

Now let's turn to the experience in the U.S.

The WIC program is unique in many ways—one which is the fact that a strong emphasis was placed on evaluation of WIC from its very inception. Because of this, we now have a total of seven different studies which have evaluated the prenatal component of supplementary feeding programs. A synopsis of the results are presented in Table 2.

I don't want to discuss each of the individual studies but I would like to summarize the major findings. Despite the fact that the studies were conducted in different locations—Massachusetts, Oklahoma, Tennessee, Missouri—and with different experimental and quasi-experimental designs, there is a remarkable similarity in the reported results. All studies report a positive effect on the birth weights of infants born to program participants and a decrease in the incidence of low birth weight (less than 2,500 grams) and/or small for gestational age infants. In addition, the 1980 study conducted by Dr. Milton Kotelchuck and his colleagues in Massachusetts also found significantly fewer neonatal deaths in infants born to WIC mothers when compared to babies of non-WIC women.

I have recently completed a reanalysis of our data using the matching procedure developed by Kotelchuck et al. in Massachusetts. We felt that a case-control design would be more methodologically rigorous than the multi-variate analysis. We matched each of our non-WIC women to a WIC woman based on racial/ethnic group, age, parity, marital status and income. The results indicate that WIC participation was associated with a positive, significant increase (+107 grams) in birth weight and a significant decrease in the incidence of LBW.

The results from these studies show an effect of WIC within a remarkably similar range—birth weight is increased by 90–110 grams and low birth weight is decreased 30–40 percent.

The effect of WIC on the incidences of LBW has much more of a public health implication than to supply a 3- to 4-ounce increase in birth weight. If mean birth weights were increased but there was no effect on LBW rates, the WIC program would be considered less effective. We know that LBW infants are more prone than normal weight infants to mortality, birth defects, and health problems. Data indicate that approximately 184 of each 1,000 LBW infants die within the first year of life, compared to 8 out of 1,000 for infants weighing between 3,001 and 4,000 grams (15). The March of Dimes estimates that 15 percent of LBW infants have major physical disabilities such as blindness or retardation. Reducing the likelihood of mortality and disabilities is clearly an important benefit.

I would be hesitant to make any generalizations about the effects of WIC based on only one study, but given a series of studies, the result of which reinforce each other, it is clear that participation in WIC is associated with improved neonatal outcome.

As part of our analysis we also attempted to determine if the economic benefits of the WIC prenatal component justifies the costs. LBW infants typically require anywhere from 12 to 100 days of hospitalization after birth. Normal weight babies average 3 to 5 days. Thus, preventing LBW can dramatically lower post-natal hospital costs.

We estimated the savings in hospital costs due to WIC's reduction in the incidence of LBW births. This savings was then compared to the total cost of WIC prenatal care. The findings showed that the sayings exceed the cost by approximately three to one. Thus, the study found that treating LBW after birth is three times more expensive than preventing it through WIC, or in other words, that a dollar spent on WIC for prenatal care saves three dollars in hospital costs (for a net saving of two dollars). These results are in fact conservative, since the study did not count physicians' fees nor did it include the longer-term treatment cost for LBW babies.

This analysis reveals that from a cost-benefit point of view the WIC prenatal supplementation program is highly desirable. In fact, it turns out to be a net resource saver for society. Furthermore, in the face of ever-increasing hospitalization costs, the preventative approach of WIC will become even more attractive in the future.

Similar analyses have recently been conducted in Missouri, and their results also show a positive benefit/cost ratio in favor of WIC (22). The Missouri researchers compared the medicaid costs for the WIC and non-WIC women and found that there was a 1:1.42 cost-benefit ratio in favor of WIC.

For the past few years I have been involved primarily with international nutrition programs. I have frequently been asked why we are able to show such dramatic changes in the U.S. due to WIC when supplementary feeding programs in developing countries appear to have been less successful. There are two major reasons:

(1) The level of benefits provided in WIC is much higher than that which is provided in other programs. Most supplementary feedings programs in developing

countries provide a daily supplement of 200 to 300 calories. The WIC program provides approximately 900 calories a day to pregnant women. The greater level of supplementation in WIC accounts, in part, for the significant effects that are observed.

(2) The second reason for the positive and significant effects of WIC is probably due to the fact that WIC stresses the provision of not only food but health care and nutrition education. WIC is not simply a supplementary feeding program in the traditional sense but, rather, a more appropriate label would be an "integrated health/nutrition intervention." I make the distinction because in developing countries there are a number of examples where an integrated health/nutrition program was able to bring about a significant improvement in neonatal outcome. One of the strengths of WIC is the focus on food plus health care plus nutrition education.

The research which I have reviewed allows us not only to say that WIC is having a positive and significant effect on pregnant women and their infants, but the research also can be used to tell us where the WIC program needs some fine tuning. The studies collectively indicate that "more is better better than less." As the length of participation in WIC increases, the effects also increase. Consistently we see that the greatest increment in birth weight is in those infants born to mothers who participated in WIC for six or more months. Active outreach efforts should be initiated to enroll women in WIC early in their pregnancy.

The research also show us that WIC is able to produce more of an effect in "high risk" women. Teenagers, non-white prenatals, women with a history of producing low birth weight infants and smokers benefit more from WIC than women of lower risk.

Lastly, what is sometimes overlooked is the fact that WIC is a supplementary feeding program—that is—the WIC foods are meant to be a net addition to the foods already consumed. The foods are not supposed to substitute for foods already in the diet. In our study, the majority of women were receiving food stamps. The WIC foods were supplemental to those foods which were purchased with food stamps. The core diet was being purchased with food stamps. Therefore, a cut-back in the allocation of food stamps would also adversely affect WIC. I know the food stamp program is not the responsibility of this committee, but it is important to underscore the negative effect a cut-back in food stamps could have on WIC.

Thank you for giving me the opportunity to appear today.

TABLE 1.—SUMMARY OF PRENATAL STUDIES

Study	Number of people	Results
Montreal	1,736	Birth weight decreased LBW 6.9 percent in treatment of women compared to 9.5 percent controls.
Hyderabad, India	25	Birth weight increased by 12.5 ounces.
Oslo, Norway	728	LBW rates 2.2 percent in treatment women vs. 4.6 percent in controls.
Scotland	730	LBW rate 6.4 percent in supplemented group compared to 11.1 percent in controls.
Guatemala	(1)	Birth weight increased in supplemented group; LBW cut by one-half in treatment women.

[1] Four villages.

TABLE 2.—SUMMARY OF STUDY FINDINGS

Study	Mean WIC effect on birth weight
UNC (16)	+43 grams (+136 grams in women on WIC for greater than 6 months).
Harvard (17)	+122 grams.
Massachusetts Department of Health 1980 study (18)	+23 grams (+110 grams in women in WIC for greater than 6 months).
Massachusetts Department of Health 1982 Follow-up Study (19)	+23.5 grams (+110 grams in women in WIC for greater than 6 months).
NTS (20)	+96 to +116 grams.
University of Oklahoma (21)	+91 grams (+200 to 300 grams in "high risk" women).
Missouri Health Department (22)	Positive effect on birth weight.

REFERENCES

1. Antonov, A.N. (1947). Children Born During the Seige of Leningrad in 1942. J. Pediatrics 30:250.
2. Smith, C.A. (1947). The Effect of Wartime Starvation in Holland Upon Pregnancy and its product. Obstetrics and Gynecology 53:399.
3. Birthchilt and Gussow, T. (1970). Disadvantaged Children: Health, Nutrition and School Failure.
4. Burke, B.S. et al. (1943). Nutrition during pregnancy I Problem, Methods of Study and Group Studied. Am. J. Obster. Gyn. 46:38.
5. Dieckmann, W.J. et al. (1951). Observations on Protein intake and the Health of the Mother and Baby. I Clinical and Laboratory Findings. J. Am. Diet. Association 27:1046.
6. Tompkins, W.T. (1941). The significance of nutritional deficiency in pregnancy: A Preliminary Report. J. Int. Coll. Surg. 4:147.
7. Acosta-Sison, H. (1929) Relation between a State of nutrition of the mother and the birth weight of the fetus: A Preliminary Study. J. Philippine Islands. Med. Assoc. 9:174.
8. Ebbs, J.H. et al. (1941). The Influence of Prenatal Diet on the Mother and Child J. Nutri. 22:515.
9. Higgins, A.C. Nutrition and the Outcome of Pregnancy. Paper presented at the Canadian Public Health Association. Annual Meeting June 19, 1974.
10. Iyenger, L. (1968). Effects of Dietary Supplements Late in Pregnancy on the Expectant Mother and Her Newborn. Int. J. Med. Res. 55:85.
11. Toverud, G. (1950). The Influence of Nutrition on the Course of Pregnancy. Millbank Mem. Fund 28:48.
12. Tompkins, W. and Wehl. D. Nutrition and Nutritional Deficiencies as Related to the Premature. Pediatrics Clin. North Am. 1:687.
13. Klein, R.E. et al. (1976). Effects of Maternal Nutrition on Fetal Growth and Infant Development. Bul. Pan. Am.: Health Organization x(4):301.
14. Kielmann, A., Taylor, C.E. and R. Parker (1978). The Narangwal Nutrition Study: A Summary Review. Am. Journ. Clini. Nutr. 31:2040.
15. Select Committee on Nutrition and Human Needs (1976).
16. Edozien, J. et al. (1976). Medical Evaluation of the Supplemental Food Program for Women, Infants and Children. U.S. Government Printing Office, 75–123, Washington, D.C.
17. Kennedy, E.T. et al. (1982). Evaluation of the effect of WIC supplemental feeding on birth weight. Journal American Dietetic Association 80:220.
18. Kotelchuck, M. et al (1981). Final Report: 1980 Massachusetts Special Supplemental Food Program for Women, Infants, and Children Evaluation Project Submitted to Food and Nutrition Service, USDA, Washington, D.C.
19. Kotelchuck, M. et al. (1982). Final Report: Massachusetts Special Supplemental Food Program for Women, Infants and Children (WIC) Follow-up Study.
20. Monrad, D. et al. (1982). Evaluation of the Commodity Supplemental Food Program. NTS Corporation, Durham, N.C.
21. Metcoff, J. et al. (April 1983). Effect of WIC on Birth Weight (Abstract). American Journal Clinical Nutrition.
22. Missouri Dept. Public Health (1982). Analysis Effects of WIC. Jefferson City, Mo.

INTERNATIONAL FOOD POLICY RESEARCH INSTITUTE,
Washington, D.C., September 6, 1983.

Congressman GEORGE MILLER,
Chairman, Select Committee on Children, Youth and Families,
Washington, D.C.

DEAR CONGRESSMAN MILLER: Thank you for inviting me to appear at the first meeting of the Prevention Strategies Task Force. I hope my testimony was useful.

The following are answers to questions submitted by the various members.

Question. Mrs. Vucanovich: Would you outline what percentage of WIC participants in your area fall into each of the six priority categories? For example, the first priority in the WIC program covers pregnant women, breastfeeding women and infants determined to be a nutritional risk by a blood test—or some other documented medical condition.

What would be your reaction to targeting WIC benefits to those in a higher priority—pregnant women and infants up to age two? Several nutritionists have indicated that these should be the focus of the WIC program. (The point has been made

that the older children are likely to be eligible for, and participating in, the child care food program.)

Answer. Our study was only looking at pregnant women. Therefore, all of our women fell into either priority category one or two. The results from our study indicate that WIC has more of an impact on higher-risk women. The current priority system effectively targets WIC program benefits to higher-risk women in that pregnant women and infants are given higher priority than are children. However, there are instances where a child should receive WIC services before a pregnant woman. For example, a two-year-old diagnosed as a failure-to-thrive child has more of a need for WIC than a pregnant woman with an inadequate dietary pattern but no other evidence of prenatal risk. WIC services should be available to this two year old.

WIC is more than a food program since it also stresses the provision of health care and nutrition education. Other programs like the child care food programs do not provide this comprehensive package of services. WIC should maintain the flexibility of allowing those one to five year olds who need the program to continue to participate.

Question. Mr. Bliley: Have you, or other evaluators, been able to distinguish between WIC's nutritional impact and the health impact from more frequent prenatal visits to a health clinic?

Answer. Our study evaluated the effect of a number of medical visits, number of nutrition education sessions and number of food vouchers separately in a multi-variate analysis. Above and beyond any effect of prenatal care and nutrition counseling, we found a positive, significant effect of the WIC food package on infant birth weight.

Question. Mr. Bliley: In response to questions from the then Chairman of the Senate Agriculture Appropriations Subcommittee, Thomas Eagleton, the General Accounting Office concluded in 1980 that your study "has several problems and unanswered questions which could affect the overall conclusions." The GAO identified 8 problem areas in your study. How have you addressed the points made by the GAO in the WIC evaluation work you have been involved in since?

Answer. A detailed response to each of the eight questions is attached. As you will note the main concern of GAO is with the issue of comparability of the WIC and non-WIC women. Our recent work attempted to control for any difference between participants and non-participants by matching each non-WIC woman to a WIC subject based on racial/ethnic group, age, parity, marital status and income. The results from this analysis are similar to our earlier reported study. WIC participation was associated with a significant impact on birth weight.

Question. Mr. Bliley: Do you have any information about the income levels of WIC participants in your area?

Answer. The majority of both WIC and non-WIC women in our study were below poverty.

Question. Mr. Miller—Follow-up Question: In the course of your work, what evidence have you seen of effective links between WIC and other nutrition programs, so that there is continuity of benefits for young children and mothers after participation in WIC?

Answer. We only followed women in our study up to delivery. We have no information as to continuity of benefits in other programs.

I am also including corrected copies of my testimony and questions. Again, thank you for inviting me to appear before your committee.

Sincerely,

EILEEN T. KENNEDY, *D. Sc.*

Mr. LEHMAN. Dr. Weikart.

STATEMENT OF DAVID WEIKART, DIRECTOR, HIGH/SCOPE FOUNDATION, MICHIGAN

Mr. WEIKART. I appreciate the opportunity to talk today with some of the issues in early education. I have a strange position on the panel. I am the only educator who gets involved. In a sense, I have it all to myself.

What I wanted to stress was that the information I am going to talk about is information derived over a 2-year period, work begun

in the early 1960's, 1965, 1966, and now through a series of studies available as to what is the outcome.

So often we begin things at the start, initiation, we wonder what will happen over the years? Is it worth what we are doing?

The purpose of this particular study I am talking about and supporting studies, is that it has been done over a period of time. We now know the outcomes. In a sense, you can do a body count to find out what happened afterwards. So the play has been given. The outcomes are available. I would like to talk some about those today.

I also appreciate very much coming at the end of the series because of the introduction that the various panels have given to the kinds of things of interest. For example, the thing motivating us initially in the early sixties was not educational theory, but learning theory and information about critical periods from animal studies—Scott's work with sheep, for instance. This seems strange but early education was simply not done in the early sixties except for a few privileged campus laboratory kinds of schools and a few cooperative nurseries.

In the same vein, too, I am pleased to talk about it from the notion of prevention, because the issue of prevention is very critical to the thinking of what the committee is looking at, which I think many of us are beginning to move to in the field. We must find ways of preventing problems and then concentrate the available resources on amelioration of those problems, in a sense, later when they occur.

If we can prevent teenage pregnancies, we don't have the problem of low birth weight, we don't have the problem of inadequate mothering. Or if we can make the population of teenage pregnancies smaller, then we can concentrate increased rich resources on those that need the services. I hope very much there is a way for those of us concerned with the prevention of problems to join forces with those concerned with adequate remediation of problems once they occur. We really have the same remit, as the British would say.

In a sense, the two extremes of evidence have been evolving. One has been that coming from a series of small carefully designed research projects, and the second is that being generated by Head Start itself, and its the impact of the early education. I would like to talk about them a little differently and then draw them together at the close.

The first thing I wanted to do was talk about the High/Scope Perry project, which began in 1961 in planning, and in operation in 1962. Over a period of several years a group of 123 black youngsters were selected from the city of Ypsilanti, Mich., which is kind of a big city-small city microcosm. The youngsters were picked from one particular school neighborhood. I am going to spend some time in talking about the study because of the importance of the way it was constructed with some of the outrageous claims I am going to make a little later.

The study was set up by actually interviewing every member of the school district that we were working in to find families that had children who were 3 and 4 years of age who would be admitted to the program. We did this because we wanted to have both those

who came to the program and those who were just like them who would not participate—and it is these key words, "who were just like them"—in other words, random assignment to those who participated and those who did not to make the outcome so important.

Most studies that are done in society—and if I were to do this study again today, I would have to do it through a comparison group in some other city, some other place. In other words, they would be the same but not quite. We would always be vulnerable to the accusation that, well, if you had just had a randomly assigned control group, then you could make those statements. Well, we did. It wasn't out of careful planning, it was just graduate student ignorance that allowed us to do it this way, to set it up the right way.

In doing this, interviewing every family, we found families who met certain criteria. Low income, welfare, low education by the family, and a high density of housing. In other words, people per room. So we got a lower socioeconomic group, difficult families, where the prospects were relatively poor.

Having selected them, the children were screened to also be of low ability. It is difficult to really truly screen 3 and 4 year olds. We are much more sophisticated in 1980 than in 1960 about what it means when one does screen a child that age. Nevertheless, that is the way the process was in place following the State regulations at the time, the State of Michigan regulations.

Having selected this group, they were then randomly assigned to either participate in a year long early education program of 2½ hours a day, plus home visit of 90 minutes each week for a school year, or were selected to be in a study but stay at home with their moms.

Families neither selected to be in the study nor selected out of the study. One mother decided she didn't want to participate when she discovered her children were in the control group, the group that stayed home. The principal and minister visited her. Twenty-two years later we still have to send the minister over to get her to cooperate in the follow-up. Aside from that, things worked pretty smoothly.

The second important thing is there has been no sample attrition. The 123 children involved in 1962, 1963, and 1964 are still involved today. Our interviewers look forward with great anticipation to being able to find them in Germany, Oregon, Florida, California, and look forward to those assignments with some relish. We nevertheless do find all our children.

One advantage I have discovered of a relatively small sample is one being waste. Inevitably the large resources are getting the least few youngsters.

Having done the study, participated in the program for 1 year or 2, the children then went into the normal school, went into a regular kindergarten in a regular public school and scattered to the winds. They went eventually to about 15 or 18 different schools, they were scattered in many States, and so forth. A majority remained within Washtenaw County; about 90 of the 123 remained within the area.

As we followed them each year over the years, we found different kinds of things coming out of the study. I want to focus upon what happens at the age 19. We saw them first at age 3. We saw

them every year through age 8 or 9, 7 to 9. We saw them again at age 14, age 15, again at age 19. God, foundations, and the Federal Government willing, we will see them all at the age of 25, starting next year.

The question that I want to talk about is what do they look like? What came out of this result? There is a lot of small details. I would like to focus on the big seven. Broken down into education, employment, and social behavior outcomes.

Interestingly, in education we found immediate kinds of outcomes. For example, as soon as the school begins working with the child, judgments are made. We discovered quickly as early as third grade there were differential rates of assignment to special education occurring. These children from the control group were being assigned to special education at a more rapid rate than children not from the control. Kids with preschool were not being assigned as frequently.

At the end of the school years, we found that approximately 15 percent of the youngsters from the experimental group spent some time in special education versus 35 percent from the group without preschool in special education. This means the program was started out as prevention, indeed prevented approximately—from 35 percent which would be expected from this population, down to 15 percent. This means that we saw immediate impact on the schools as a result of this differential assignment, based on school performance. The schools made that independently of whether they went to preschool or not.

The second thing in school is that as they completed school, we had differential completion rates. A concern we have at large in this community of how do we keep children in school to learn what they can before they either leave or graduate from school. In this case, 67 percent of the group with the preschool completed high school, graduated from high school versus 49 percent from the group without preschool programing.

So a difference in school holding power, if you will, capacity of the child to benefit from participation which is illustrated by willingness to stay in the program. This is supported by other smaller data, but this is the main finding.

The third thing that is of interest is what have they done with their lives since leaving school? We find 38 percent of the group with early childhood education have gone into job training or into college, neither of which would have been predicted from their scores or attitudes at age 3. Nevertheless, 38 percent of the group from the experimental group have gone on into college or job training versus only 21 percent from the group that did not have early education.

I should say each of these figures I am giving meet the various statistical tests of standards here.

Finally, we know that these education patterns really set in motion a range of things critically important for the rest of society and not surprisingly, we found that, for example, in employment we found age 19, 45 percent of the group with the early education are self-supporting versus 25 percent from the control group who are self-supporting, a very significant economic difference.

Last, we have found differences that I think are of great importance for the community at large, in addition to individual and social behavior. For example, we have been able to follow the juvenile deliquency and crime rates as young adults of the group. It is high in both cases, but it is amazingly high in the group without early education. Fifty-one percent of the group without preschool programing have been arrested at least once by age 19 versus 31 percent of the experimental group.

In other words, it reduces the crime rate approximately in half. And not given here also is the fact that there is a difference in the quality of the crime. The group without early education do a much more serious sequence of crimes than the group with it.

A point that bears much on the earlier conversation today is on pregnancy rates. This was an unexpected outcome to us, though it makes sense, given the fact of other components in the program. Putting it on the basis of per 100 women, we find that 64 babies have been born to the women of the experimental group per 100 women of the experimental group by age 19 as compared to a birth rate of 117 per 100 women for the group in the control.

My guess is that the 64 births would very much match the kind of pattern that several of you have discussed in terms of expected outcomes, meaning some of the criteria which you are having with the 117 is typical of the low income, disadvantaged, no prospect young female.

So we have in a sense a tremendous preventive component which comes out of this. Of course, that figure makes sense when we look at what else is the girl doing. Well, she is going to college, in job training, working full time, completed high school. She has prospects, while the young woman has less of that and is more inclined to be involved in replacement activities, in this case, pregnancy.

These are very important data, important outcomes and supportive of the notion that early investment is very critical.

In point of fact, we can turn this around and not talk about ethically but talk about economically. We find that indeed it is possible to assign values to high school completion, job performance, pregnancy rates, welfare participation. Excuse me, I left data out. There is also in welfare participation a difference. We find in 19 percent of the group, from the experimental group, are on welfare, have been on welfare by age 19, versus 41 percent participating in welfare from the control group by age 19.

We can assign dollar values to these. What we have found and because of the duration of the study, the length of time involved, the various components of it, a complex economic analysis which I am grateful to the economist's community for training me and supplying people to really do this kind of work.

We find that for every $1 invested in high quality, preschool programming, we find a $4.57 return for it as an outcome. For example, for every $1 invested, there is a $1 reduction in special education, public education costs. For every $1 invested, there is a 50-cent reduction in crime costs, such as police arrests, possessing, juvenile detention, court, probation, these things. Not jail costs yet.

There is a 25-percent reduction in welfare costs and a $3 increase in lifetime earnings projections.

These figures assume two things: One, that the preschool costs $4,000 and that is important to say, because people have said these are really economically viable programs only when they are very low cost. We used as a basis a relatively high cost program, $4,000, and it still pays off 4 to 1, or almost 5 to 1. So, the investment side has to be looked at the outside simultaneously.

Second, this figure—and here I will have to bow to my economist friends to really explain it—but this is based on a real discount rate of 5 percent, which means we have taken inflation out over the 20-year period, plus the projected times, and a high rate of inflation, too, not the current, the older several years ago inflation rate.

We have also taken out before giving the figures, the 5-percent discount assuming that if the money were invested elsewhere, it would have at least a 5-percent return over and above inflation. So, the dollar return is over inflation and over the 5-percent earnings and the $4.75 still returns above that. If you ignore that, then there is a $9.50 return, but let's set that aside.

If, in a sense, we take these initial findings from the study then, dollar value, and long-term outcome value, we have an extraordinarily strong endorsement of public investment in such programs as Head Start and other avenues of child care, day care, and so forth, if they meet the standards of high quality.

If these data stood alone, as the single study, they would be like a curiosity, a Ripley's Believe It or Not. Unfortunately, there have been a series of other studies that found the same parallel. Several were mentioned today. One of the key findings from other studies is they do reduce special education placement.

Several of the panel members of the other two panels mentioned the reduction of such and such a process like reducing the low birth weight—kids with low birth weight going into special education more frequently. If we can reduce that, we can reduce special education. This pattern has been showing up in several studies. There have been several reseach projects of early education per se, like I have done, such as Frank Palmer's and Susan Gray's that have shown the same reduction in special education and the same increase in school attendance, school completion.

In addition to those specialized studies, currently national Head Start is doing a summary of the Head Start data that comes just from Head Start panels and channels. These data have indicated the same kind of finding, good Head Start programs are reporting lower special education placements and higher high school completion.

Suggesting that a study like the High/Scope study, which is intensive and long term and heavily invested in terms of cost to do the research, have looked at all nooks and crannies, we just take the couple of mountainous outcomes in the sense and we look at other studies. We find they climb the same mountains. We can assume it is generalizable.

I would like, in a way, to close by using the Metro analysis that was introduced. In a sense, the dollar invested to the child permits him to get on Metro and pay for the fare, but when he gets off he pays the conductor another $4.75.

Mr. LEHMAN. Thank you very much.

[Prepared statement of David Weikart follows:]

PREPARED STATEMENT OF DAVID P. WEIKART, HIGH/SCOPE EDUCATIONAL RESEARCH FOUNDATION, YPSILANTI, MICH.

Historically, education has been the means by which individuals have improved their prospects for a more productive and personally satisfying life. Our sociality, investing in education, has reaped the benefits of meaningful progress in all aspects of our nation's development. While the current debate, sparked by National Commission on Excellence in Education through their report on A Nation at Risk, focuses attention on the secondary level, there is also a growing recognition that we may effectively prepare students for education through high quality early childhood programs. Such programs enable students to be more successful in school than would be possible without early education. While this knowledge has been gradually accepted in the last two or three years, the evidence to support it has been evolving over the last two decades. Now the evidence is among the strongest available to policy makers for decisions about expenditures of public funds.

Research concerning the key importance of early childhood education began a few years before the advent of National Head Start in a series of specially designed and highly controlled research projects. With Head Start, evaluation studies funded through National Head Start focused on the impact of such national programming. Now these two streams of work have come to fruition with astounding evidence of effectiveness. High quality early childhood education can improve the lives of children and their families and, most important from the public policy viewpoint, it can enhance the quality of life in the community at large. This testimony will look at these streams of information with special focus on the High/Scope Foundation's Ypsilanti Perry Preschool Project and the related cost-benefit information derived from that study.

FINDINGS OF THE HIGH/SCOPE PERRY PROJECT THROUGH AGE 19

The High/Scope Perry Project is a longitudinal study designed to answer the question, "Can high quality early childhood education make a difference in the lives of children, their families, and in the quality of life of the community?" The project has five phases of which four have been completed and the fifth is scheduled to begin in the fall of 1983. The phases to date include:

Phase 1: Operation of a high quality early education project with curriculum development, home visits, and carefully designed and replicated research components. The children began at age 3 (one group at age 4) and were studied through the end of preschool. (See: Weikart, Deloria, Lawser & Wiegerink, 1970).

Phase 2: A longitudinal study through age 8 or third grade. The focus is on intellectual development, achievement patterns, and social adjustment. A cost benefit analysis is included using current and projected data. (See: Weikart, Bond & McNeil, 1978 and Weber, Foster & Weikart, 1978).

Phase 3: A longitudinal study through age 15 or ninth grade. The focus is on intellectual development, achievement patterns, and family attitudes. School success, delinquency, employment entry experience, and an extension of the cost benefit information are the major concerns. (See: Schweinhart & Weikart, 1980).

Phase 4: A longitudinal study through age 19 or after high school departure. This phase focuses on functional achievement, social behavior in the community at large, job training, college attendance, pregnancy rates and patterns of crime. A major component is the update of the cost benefit analysis using complete school records, court records, and state department of social welfare data. (See: Changed Lives, in press).

Phase 5: A longitudinal study through age 25. The focus will be on family function, employment patterns, welfare utilization, crime patterns, and a cost benefit analysis with complete data. This phase is to begin in the fall of 1983.

STUDY DESIGN

The study, which began in Ypsilanti, Michigan in 1962, is an examination of the lives of children who were born with the odds against them—poor, apparently destined for school failure, and black in a society in which discrimination was common. Of the families in the study, 50 percent received welfare assistance; 47 percent were single-parent families. Only 21 percent of the mothers and 11 percent of the fathers had graduated from high school. Thus, the families chosen for the study shared very similar social and economic characteristics, and they were very similar to the families later selected to participate in Head Start.

The 123 children in the study were randomly assigned either to an experimental group who attended preschool or a comparison group who did not attend; these two groups were highly similar in the characteristics of children and families. Because of their background similarities, any differences between the groups thereafter could be attributed to the preschool program. The experimental group attended a high quality program in a preschool classroom for two-and-a-half hours once a week, either for one school year at age four or two school years at ages three and four.

The High-Scope Project has been unusually fortunate in retaining all of the participants who began with the project. There has been no sample attrition. While not all data are available for every participant at every test point, over 95 percent of all data are available. Thus, the data reported here are from a group of young people growing up in our society who participated in a high quality early childhood program compared to a group just like them who did not participate. In reporting these results, it is important to note that these are preliminary data and some adjustments are expected as the final report is prepared. All findings presented are statistically significant, with a possibility of occurrence by chance of less than 1 in 20.

EDUCATION

During the school years, one important outcome for the group who participated in the preschool programs was that they were placed in special education at a much lower rate than those in the group who did not have preschool: 15 percent vs. 35 percent. With this early indication of a higher rate of school success, the preschool group also finished high school at a higher rate than did those without preschool; 67 percent vs. 49 percent. They then followed up their school success by enrolling in job training or college classes at a higher rate than did those without preschool; 38 percent vs. 21 percent. This pattern of participation and success in educational opportunities is essential for future job success and productive income generation. These three sets of data point out the lasting value of early education through the creation of a pattern of self development and success with the major institutions of society. They foreshadow the kinds of data to be found in other sectors of the lives of these individuals.

EMPLOYMENT

The differences in employment patterns of the two groups provides a sharp contrast. Those who participated in early education are self-supporting about twice as often as those who did not attend preshcool; 45 percent vs. 25 percent. When this difference is considered along with enrollment in college and job training, the difference is even more important. This ability to get and hold a job at age 19 is important to maintaining a posture in society, and it suggests the basic strength of those who attended preschool in forming a foundation for independence and self-direction.

SOCIAL BEHAVIOR

With better education and employment patterns established, the differences in various areas of social behavior are no surprise, though very welcome. Preschool participants have a lower arrest rate for criminal behavior than those who did not participate; 31 percent vs. 51 percent. Those with preschool are less likely to appear on the welfare rolls than those without preschool; 19 percent vs. 41 percent. Finally, the birth rate for the young women who participated in preschool is 64 births per 100 women as compared to 117 births per 100 women for those who did not participate.

Clearly these data from education, employment and social behavior areas are impressive. They give a picture of a group of young people who can take advantage of opportunities, be productive, and who are prepared to make a contribution to society through their own efforts. While not all of those who attended preschool are successful and not all of those who did not attend are failures, the differences between the groups is significant and the areas in which they differ are important to society.

There is one additional area that can be explored; cost benefit analysis. It is possible to view these outcomes of high quality early childhood education from the point of view of the economist. It is possible to talk about the "bottom line" of such efforts as an investment of public funds compared with alternative public investments. The following data look at the project from an economic point of view:

Cost Benefit Results:

1. For every dollar invested in one year of high quality preschool education for economically disadvantaged children, the returns to society over the lifetime of the subject are approximately: $1 in reduced public school education costs; 50¢ in re-

duced crime costs (police, juvenile detention, court, probation); 25¢ in reduced cost of welfare administration (in addition, $2.25 in reduced taxpayers' cost of welfare); and $3 in increased lifetime earnings (75¢ in increased tax revenues).

2. What these figures assume: Preschool cost of $4,000 (1981 dollars); and a real discount rate of 5 percent (effects of inflation are taken out as is a 5 percent discount rate to reflect expected earnings above inflation of a standard business investment).

3. What these figures mean: Return on investment to society for each $1 is $4.75. (It also happens at this point that the taxpayers return is $4.75 as well); undiscounted savings and benefits are approximately double the discounted figures, or $9.50 for each $1 invested; and preschool pays $1+ return for each $1 invested before age 19.

While these data are still only the initial findings and are subject to change, the trend is only up. That is, the more actual information we get from the life experience of the participants the more we have to increase our figures to indicate that the return to society for this investment is greater than we originally, and very conservatively, calculated. The meaning of the cost benefit analysis, however, is clear. Society at large gains in a significant and a major way from the investment in high quality early childhood education for disadvantaged children. It gains because it costs less, far less, than not making the investment. The way to reduce taxpayer burden is to provide the programs. It is that simple.

There are other issues in addition to dollar savings. Every community wants fewer folks on welfare, more dependable employees, more college graduates, less crime in the street, lower rates of teenage birth. High quality early education delivers on these goals as well. While clearly not the answer to all the problems that beset society, it is clearly part of that answer.

If this High/Scope project stood alone it would be difficult, perhaps, to defend it so strongly. It does not stand alone. While it is priviledged to be the most complete and very powerful scientifically in its own right, there are two other sets of data that are important to the support of investment in high quality early education.

Other research: consortium findings—Research conducted by the Consortium for Longitudinal Studies provides strong evidence that a variety of early education programs can reduce disadvantaged children's need for special education classes or retention in grade, the same school data High/Scope obtained in the earlier study phases. The Consortium is a group of 12 investigators who independently designed and implemented early childhood programs in the 1960s. In 1976 they pooled their original data and conducted a collaborative follow-up of the original participants in the studies.

Three experimentally designed studies, including the Perry Preschool Study, found that early education reduced the need for special education placement and retention in grade. The early childhood programs varied considerably: Susan Gray implemented a center-based program in the summer with home visits during the school year beginning at age four; Francis Palmer operated a program of weekly two-hour meetings of teachers and individual children who were two and three years old. Among youngsters like those in these studies, those who attended early education programs were placed in special education or retained in grade at a lower rate than those who did not have early education; 32 percent vs. 53 percent.

Other research: Head Start Synthesis Project—Currently being conducted by the Administration of Children Youth and Families to examine new evidence that National Head Start is delivering effective early education. While the data are not available for long time periods like the High/Scope project, the findings for the intermediate range are in the expected track indicated by the High/Scope project and the Consortium study. Collins, in a summary, points out that measure of success in school such as retention in grade, placement in regular classes as opposed to special education and teacher ratings, Head Start graduates usually do better than those who did not attend Head Start. (See: Raymond C. Collins. Head Start: Foundation for Excellence, in press.) From these two groups of studies, there is coliaboration in support of the findings from the High/Scope Project.

SUMMARY

High quality preschool education pays off for disadvantaged children in higher academic performance, lower crime rates, and better earnings prospects; it pays off to a community by improving the quality of life; it pays off for society at large in dollars and cents. These findings, from the High/Scope Foundation's Perry Preschool Study and from other studies, demonstrate that preschool not only prevents problems that eventually would cost society much more than a preschool program, but also increases the effectiveness and efficiency of the social investment already

made in schooling. Budget-minded policymakers looking for hard evidence that a program works to reduce taxpayer costs will certainly understand the implications for public investment which this research supports.

REFERENCES

Weikart, D.P., Delocia, D., Lawser, S., Wiegerink, R. Longitudinal results of the Ypsilanti Perry Preschool Project. Monographs of the High/Scope Educational Research Foundation, No. 1, 1970.

Weikart, D.P., Bond, J.T., & McNeil, J. Ypsilanti Perry Preschool Project: Preschool years and longitudinal results through fourth grade. Monographs of the High/Scope Educational Research Foundation, No. 3, 1978.

Weber, C.U., Foster, P.W., & Weikart, D.P., An economic analysis of the Ypsilanti Perry Preschool Project. Monographs of the High/Scope Educational Research Foundation, No. 5, 1978.

Schweinhart, L.J., & Weikart, D.P. Young Children Grow UP: The Effects of the Perry Preschool Program on Youths Through Age 15. Monographs of the High/Scope Educational Research Foundation, No. 7, 1980.

Mr. LEHMAN. I have just one question.

Before the end of this Congress, we are going to have the Immigration and Naturalization bill, and it has already passed in the Senate, and in that bill there is an amnesty provision. In that amnesty provision, as well as I understand it, millions of people who come out requesting amnesty will be eligible for emergency medical care. That means that the mothers in the amnesty program for 5 years, apparently, will not be eligible for prenatal care. What we are doing is not giving any support in prenatal care to these perhaps hundreds of thousands of childbearing age women in the amnesty program if we pass this bill. Yet, as soon as that low birthweight baby is born, that American citizen—we will have to spend a great amount of money to help that baby survive, which in Miami could amount to $100,000 plus.

So I was wondering what the subcommittee could do to offer an amendment should the bill come to the floor, in order to provide prenatal care for the women who come on the amnesty program and prevent the spending of millions of dollars for child care for the children of these currently illegal aliens? Do you know what I am talking about?

Ms. BLACKWELL. Yes; I do.

Mr. LEHMAN. What would you suggest? Would you help Mr. Miller write an amendment?

I am going to have to leave.

Chairman MILLER. I was told I have written my last amendment.

Mr. LEHMAN. One more.

I am going to have to leave in a few minutes.

I wonder if you are familiar with what is going to happen in the Immigration bill?

Ms. BLACKWELL. I just have one piece of information. It is a terrible problem and something is already being done in this country very similar that has to do with women pregnant for the first time. While these women are pregnant, in many States they do not receive prenatal care because they don't qualify for AFDC until the baby is born. In some States that means they don't qualify for medicaid. When the baby is born, they do qualify. So, there are tremendous costs in neonatal intensive care but no money paid for prenatal care.

Mr. LEHMAN. If you planned it, you couldn't make it more stupid.

Chairman MILLER. I wasn't here when they planned it.

Thank you very much.

I wonder if you would run through for the committee again your cost benefit analysis. How did you arrive at your figures, in particular the $368 and $90 million figures.

Ms. BLACKWELL. I will be happy to do that.

Before I tell you exactly what the savings is, I want to emphasize that the $187,084,000, the amount of additional money the Federal Government would have to spend to provide not current prenatal care but comprehensive prenatal care to medicaid eligible and ineligible.

Chairman MILLER. That is the gap?

Ms. BLACKWELL. Yes, sir, the $90 million is what it would cost the Federal Government to provide neonatal intensive care and rehospitalization after this expenditure. That is, after comprehensive prenatal care is provided, the percent of low birth rate babies would be so reduced that the amount of money being spent by the Federal Government for neonatal intensive care and rehospital care would drop from $638,664,300 to $90,199,040. This means an initial savings to the Federal Government of $548,165,260. Subtract from that the amount of additional money we were asking the Government to spend to provide comprehensive prenatal care, and you have the real dollar savings of over $360 million.

Chairman MILLER. Thank you.

The discussion of the difference in infant deaths for the black population and for the white population, 21.80 versus 12.4, what are we talking about in absolute numbers, in terms of the number of black deaths?

Ms. BLACKWELL. We are talking about 10,000 black deaths per year, using a rate of 500,000 blacks births per year and an average black infant death rate of 20 per 1,000 per year. In addition, when you consider 13 percent black low birth weight, that means 65,000 low birth weight black infants per year.

Chairman MILLER. Is the 10,000 part of the low birth rate?

Ms. BLACKWELL. Yes, sir, because all of these are born live and then die within the first year.

Chairman MILLER. So, in the black population we are talking about 60,000 low birth rate babies?

Ms. BLACKWELL. 65,000.

Chairman MILLER. We are talking about 10,000 deaths?

Ms. BLACKWELL. That is right.

Chairman MILLER. These are the absolute numbers?

Ms. BLACKWELL. Yes.

Chairman MILLER. I am sorry Mr. Bliley is not here. He was talking about teenage pregnancy. It seems to me your pleading starts to construct an inverse triangle. We start with the population that is impoverished, and then they select out the teenagers that are impoverished, then the number of those teenagers that will give birth, then the number of teenagers that will give birth to low birth weight babies, then the number of low birth weight babies that will die. The absolute numbers, get larger and larger, given the overall percentage of the original population.

A few weeks ago, in Chicago, I was told that 44 percent of the births that take place this year will be out of wedlock, and that 22 percent of low birth weight babies were going to be born to teenage mothers. So, this plea, the petition for remedy, it seems to me, to zero in on rather small populations that create rather large ramifications.

Ms. BLACKWELL. That is true.

Ms. SALISBURY. In addition to being able to deal with teenagers' problems, should they be pregnant, part of our petition focuses on family planning to prevent the pregnancy. Some of the programs I cited have consistently had a very successful rate in reducing subsequent pregnancies when teenage pregnancy is a part of the problem. I don't know offhand what the figures are, but they are cited in the petition. We know out of wedlock births often are not the first; many teenagers have two and three infants before they turn 20.

Chairman MILLER. Close together?

Ms. SALISBURY. Yes, sir, but the prenatal care that we were talking about, comprehensive prenatal care, has been shown to have profound effects on curbing those subsequent pregnancies and assuring the health of the first baby.

Chairman MILLER. I don't know how we will work it out, but I think, again, we can target policies for a specific group of low-income women and teenagers, and that we have the ability to prevent pregnancy in those groups. There are many methods, saying no and planning come to mind, but the multiple benefits that flow from the prevention are really rather dramatic. This does not even consider the savings beyond economics, the savings in human misery that would be among the multiple benefits that might flow one action.

Ms. BLACKWELL. That is very true.

I would like to emphasize that part of what we focused on is a way to get more prenatal care to all low-income women. I looked specifically at the black population to determine what percentage of low birth weight babies could be accounted for by teenage pregnancies. I can't talk beyond the 45 cities that we studied. In the 45 cities, the teenage pregnancy rate among blacks was 24 percent in 1981; 27 percent in 1978. I then found out that of the 65,000 babies that would be born low birth weight, births to teenagers would account for about 28 percent of them, or about 18,000. So it would be a significant contribution, but a much more significant contribution to be able to reach out to all low-income women.

Chairman MILLER. I agree. I think there is a common belief or perception that it would be wise if teenage women did not have babies at that time in their lives for a range of medical, social, and economic reasons. And I think we can see from this morning's testimony that, just from a dollar standpoint alone, if we don't take action the expenditures in later years are very, very large.

Mrs. Johnson?

Mrs. JOHNSON. I apologize to the panel for not having been able to get back at 2 o'clock. I will review your testimony and will ask right now, for the privilege of submitting questions on the minority side for at least a few days, because I do want to review this testimony.

Chairman MILLER. We will hold open the record, if there is no objection. A number of Members on both sides have made this request.

Mrs. JOHNSON. One of the questions that I would like to pose to you is about teenage pregnancy.

You mentioned your support for family planning services, and the evidence that you have seen that shows good prenatal care discourages multiple pregnancies by young people.

What other approaches to the discouragement of pregnancies have you seen work, or has any of the investigation that you have done identified effective programs in reducing teenage pregnancy rates?

Ms. BLACKWELL. No, I don't know anything more than that one of the things that we did find in just reviewing the teenage pregnancy literature that is there is an incredible amount of ignorance about prevention of pregnancy. Those statistics are absolutely startling. They appear in our petition on pages 39 through 41. There the petition discusses the percent of teenagers in the high schools who have no idea how to prevent pregnancy and who are sexually active.

Mrs. JOHNSON. Do you have any information as to the relationship between teenage pregnancy and sexual abuse within families?

Ms. BLACKWELL. No.

Mrs. JOHNSON. As to the Head Start program, I was interested, in your summarizing some work that has been done that indicates that Head Start does result in lower demand for special education services and greater success in completion of high school. Have there been any efforts within the Head Start program to reach families while children are at an earlier age?

In other words, is there any attempt to work with Head Start parents not only with regard to the child but——

Dr. WEIKART. There are restrictions on what Head Start can do. They must focus on the Head Start recipient child, which is either 3 or 4, but can be 5, but not below that, as I understand the regulations. However, when they do work with families, they do include other children in other involvements. It is not working with the——

Mrs. JOHNSON. Has there been any research or planning that the Head Start regulations be changed so younger children become the focus, as well?

Dr. WEIKART. There have been.

Mrs. JOHNSON. What would be the implications of that for the existing Head Start program?

Dr. WEIKART. There have been several worked through, such as parent-child centers, parent-child development centers, various child coordinating efforts that have allowed them to work with younger children to try to find out what some of the issues are. I think the agency is fairly well prepared to take a position on some of those points.

Mrs. JOHNSON. Is the agency prepared specifically to talk about the existing framework to expand the focus of the teacher-family relationship?

Dr. WEIKART. I am not in the agency, so I can't speak for it. As an outsider who works with it, I think that the agency over the last 15–16 years of Head Start has really developed a lot of skills in

many areas and is thinking innovatively about a variety of approaches, things they can do that would be different. But the legislative mandate at the present time is restrictive on how they proceed.

Mrs. JOHNSON. Thank you.

Chairman MILLER. Mr. Leland?

Mr. LELAND. Thank you, Mr. Chairman.

Ms. Blackwell, earlier—I don't know if you have been here all day——

Ms. BLACKWELL. Yes.

Mr. LELAND. Earlier I talked about the problems in the black community—and it is speculation on my part—having worked with teenage pregnant girls in Houston for some time now, that there was a problem with the community itself from whence these young girls had come that might cause some different kinds of problems that might be seen in the black community as opposed to the white community, as opposed to the Hispanic community.

In your work, have you discovered that there might be some peculiarity of the black community in terms of the lack of—maybe it is an economic matter more than a uniqueness to blacks—but have you discovered any kind of peculiarity or uniqueness in the black community as far as how the young teenager is treated once that person is pregnant?

Ms. BLACKWELL. No. The work that we have done would not have looked into that. We were looking at basic numbers, looking at statistics to determine whether or not teenage pregnancy rates were going up and down, whether teenagers were getting prenatal care, how it impacts on low birth weight.

I don't know the answer to your question at all, except to say that there does appear to be a correlation between teenage pregnancies and lack of other opportunities. I think that lack of opportunity always makes the situation worse in the community, in the home and for the individuals. And so if you have a teenager in a situation where there are opportunities, you will find there is a different outcome.

One of the things that our review of the studies did find is that a white teenager who became pregnant was much more likely to marry than a black teenager, was much more likely to have a higher income at a later point, much more likely to enter the job market. If those opportunities are taken away, you have a bad situation that is going to be made worse.

Mr. LELAND. In looking at those numbers, did you see any comparison of the treatment of these young people by their parents or the community?

Ms. BLACKWELL. No, sir.

Mr. LELAND. Nothing like that?

Ms. BLACKWELL. No.

Mr. LELAND. I am really concerned because I know that in the Hispanic community in Houston the family unit is strong. I don't know whether it is cultural or unique to the Hispanic community. It might have something to do with the strong influence of the Catholic Church. We have seen that in these cases the grandmother, as was discussed earlier, is more than happy to take the child and rear the child or help the young mother to rear the child and

the child would be welcomed into the home. This is opposed to what we have seen to a greater degree in the black community—the young girl has not only been intimidated by her peers and, to some degree, the community at large, but she is herself from a single-parent home, usually one where the mother is the only parent.

So I guess what I am trying to get at is I am worried about the infant mortality rate as well as the cycle of the young teenage girl who is going to bear the child or possibly two or three more children in the future. I just wish we could come to some conclusion about that. I don't know if anybody else can comment on that.

The other thing is, you are an advocacy group of people, I understand, and I remember when I was a pharmacy student at Texas University we worked with Baylor College of Medicine students to establish a free health clinic in the sixties—it was when students were active and wanted to do something out in the community, and we got together and we established a free health clinic and we operated it for about 9 months until the community politics and a lot of other things destroyed us. We were too good for ourselves. The Texas Medical Association and the Houston Medical Pharmacists worked against us to shut us down.

We used doctors to oversee the project, so that we would have credibility in the community. These were doctors at the medical school. They were not doctors in the private sector. And they had the medical students, interns, and residents to work in the free health clinic, to actually deliver service, and volunteer nurses and nursing students from Texas University. The pharmacy students acted as advocates. We went out and knocked on doors and talked to families and asked if there were any particular health problems. We would also advise them they should come to the clinic and receive primarily health screening, and if we found any problems—those of us who were advocates would take the patient to the hospital or to a clinic with more comprehensive services.

I asked the question earlier of Dr. Brandt a surrogate for the administration, if, in fact, that kind of idea should work. He said of course even though he disputed it later, that that kind of outreach was, of course, important but not as important as other things.

What do you think about that in terms of prevention.

Ms. SALISBURY. We very much agree with your observations on the importance of outreach, consistent with what we are talking about in terms of the need for a national education campaign. But that has to be geared at the national level and there always has to be local community work as well.

The programs that we reported on which were most successful in making sure women did obtain prenatal care and reduced the incidence of low birth weight all had local outreach components. One example I can give is from the Denver, Colo., program where they had community workers familiar with their own folks in their neighborhood, who acted basically as the communicating link both to the neighborhood and to the staff. And, in only 4 months of work in one neighborhood, over 60 percent of the participants in one prenatal program came to the program because of outreach workers, and the clinic services were used at least 12 percent more in the neighborhood where there were outreach workers.

We know this is a particularly effective way to get the word out, and it is one more component in effective comprehensive prenatal care which shouldn't be lost sight of.

Mr. LELAND. You are advocating a national program?

Ms. SALISBURY. Yes, sir, some of the technical reforms we were talking about included medicaid specifically requiring outreach. We want to make sure that outreach components are, if anything, built-up. The current administration has eroded it in various ways.

Mr. LELAND. In addition to that, the thread that binds all of this together, if I may take on a controversial issue, is sex education. You know how sensitive this issue is. We have been advocates for sex education on the Federal level against tremendous odds. I hope this committee will make recommendations in the future, as far as legislative mandates are concerned regarding this subject.

Ms. SALISBURY. Well, we can't answer your political dilemma.

Mr. LELAND. Don't even try, we can't either.

Ms. SALISBURY. As Ms. Blackwell cited a little while ago, the fact is a tremendous amount of ignorance prevails, particularly among teenagers, which we know is a contributing factor to the teenage pregnancy rate. This fits into what Congressman Miller was talking about, the number of teenagers who are sexually active and don't have any real comprehension of what is happening to themselves and what the risks are, and their naivete surrounding that is quite appalling.

Ms. BLACKWELL. You mentioned in earlier comments that many people who are poor and lack access to information do not understand the importance of prenatal care and do not understand the components of it like refraining from smoking and alcohol consumption and the use of drugs during pregnancy. That is a part of what I consider outreach that can be done at the Federal level and could be tremendously important.

A few months ago I was involved in petitioning the FDA regarding the issue of the labeling of over-the-counter drugs. We proposed that there be symbols used on over-the-counter drugs to catch the attention of teenagers, women not accustomed to reading labels. I was pleased when here in Washington, D.C. Giant Drug Company began to use the symbols to alert pregnant women and others to possible risks associated with over-the-counter drugs.

That is part of what I see as an educational outreach campaign. Billboards, labels on over-the-counter drugs, alcohol and cigarettes and television commercials to inform people, who don't have access to health education classes, to the very basic information that will help to reduce infant mortality rates in the country, and particularly to close the infant death gap.

The gap is increasing and actual rates, according to our survey, are going up from 1980 to 1981—not only did the gap increase in the 45 cities, there was an increase in infant mortality rate in black communities. Again I remind you that this was using weighted averages—we were not just looking at individual cities. We considered all live births and all the deaths for half of the black babies born in that year and the rate went up.

Mr. LELAND. The fact of the matter is, we can't afford those resources, we are spending necessary money on building MX missiles.

I yield back.

Mr. WEISS. Thank you very much.

Regarding your very last comment—were you here when I asked Dr. Brandt as to what has been happening to the rate of infant mortality over the course of the last 5 years. He said—I think I am recalling it accurately—there has been a steady 3½-percent decrease year after year.

How do you square that with your information?

Ms. BLACKWELL. I did hear him say that. I will share with you that, according to the statistics that he used from the National Center for Health Statistics, the rational rate for blacks in 1978 was 25.1. In 1979 it was 21.8. In 1980 it was 21.4. The difference between 21.8 and 21.4 is not consistent with the 3½ percent increase that he said was occurring year after year.

Mrs. JOHNSON. I don't believe that his remarks indicated there was a consistent decline in every group but across the board for all groups combined.

Mr. WEISS. I can't have it read back. I will be looking at the transcript with interest because my recollection is that in fact he was talking about the black community. That is why I was focusing my question there.

Mr. LELAND. I think the gentlelady is right, he declared ignorance on the fact he didn't know whether or not as far as blacks were concerned.

Mr. WEISS. Well, I thought——

Mrs. JOHNSON. He quoted old statistics for the individual ethnic groups but I don't think at any time he implied he was addressing groups.

Mr. WEISS. You may indeed be correct.

I gather that you touched on some of your reactions to some of the earlier testimony and I am sorry that I missed it. If I am being repetitive, the chairman will so advise me.

In Dr. Brandt's concluding statement, he said the health of our children has never been better. Then he said that the prevention programs of the Public Health Service are still of the highest priority.

Would you agree with the first statement, the health of our children has never been better?

Ms. BLACKWELL. I would say the health of some of our children has never been better, but unfortunately, the health of many of our children has not changed very much in recent years. And there is disturbing evidence that, if we don't do something about the problem of low birth weight, the technological intervention responsible for reducing infant mortality once a small baby is born is not going to bring any new changes about, and we are going to see a worsening in the health of poor children and black children and children who lack access to the best this country has to offer.

Mr. WEISS. Within that context, at the very end of Dr. Brandt's statement, he referred to this briefly. He had indicated his goals and the Public Health Service's goal, and he said that by 1990 the national infant mortality rate for all babies up to 1 year of age should be reduced to no more than 9 deaths per 1,000 live births.

By 1990, no county and no racial ethnic group in the population should have an infant mortality rate in excess of 12 deaths per 1,000 live births. And discounting, for the moment, the different

numerical goals we are starting from, there may be some logic to recognizing realities of the day.

Given what in fact we are doing as a society, and what we are doing as a government, how would you view the goal that has been set, that is the rate not in excess of 12 deaths per 1,000 by 1990.

Ms. SALISBURY. I think you did miss my opening comments.

Based on the 1980 data that Dr. Brandt provided us, which were data we had been very hungry for and had not been able to obtain, the fact is again that for some of our population we are marching steadily toward that goal; for another portion of our population we are not.

Assuming a goal of 9 to 1,000, the white population as of 1980 was 82 percent toward that goal, the black population 42 percent toward the goal. Even if you accept the built-in discrepancies in the 1990 goal of only 12 to 1,000 for the black population, we are only 56 percent toward that goal as opposed to the white population being 82 percent toward a lower goal. So we are not marching at a rate of progress that is acceptable in any way. If anything, based upon our sample of half the black births in the country in 1981, we are regressing when we focus on the minority population.

Mr. WEISS. Why, if you would, this rosy interpretation of the black community march toward that goal? Do you have any insight into that?

Ms. SALISBURY. I didn't hear Dr. Brandt being rosy when he specifically talked about blacks. I heard him——

Mr. WEISS. I am talking about the numbers that you just commented on, the numbers, the goals that he had set.

Ms. SALISBURY. I see.

Mr. WEISS. As I listened to your testimony, you are saying that it isn't likely to happen, that it doesn't fit in with the rates these talk about?

Ms. SALISBURY. I do not know why Dr. Brandt would be so optimistic except it seemed to me whenever he was optimistic, he was optimistic to the total population and was failing to focus on the special circumstances of the black population and minorities.

There is a reason for optimism in that we could reach that goal but we are not currently moving toward it. We could reach this goal through provision of comprehensive prenatal care to all poor pregnant women, which is well within the capability of the current programs we have on the books and well within the current budgetary capabilities that we have. It is cost effective to do so. We know we could reach this goal but we are not.

Mr. WEISS. Thank you very much.

Mrs. JOHNSON. Before we close the hearing, I have one last question.

Chairman MILLER. Sure.

Mrs. JOHNSON. I apologize if this is not answerable.

I have reviewed what we discussed here today and have noted that there are several factors that are extremely important to assuring children the very best possible health and opportunities in their lives. It seems to me that the factors that we have discussed have been nutrition and health care, both pre-conception, prenatal and postnatal.

We also discussed alcohol, cigarettes, marihuana, coffee, and other drugs; and then at a little later age, education.

I wonder how you see the challenge of the decisions surrounding the expenditure of Federal dollars and the amount of Federal dollars that ought to be expended? Clearly they have been focused primarily on nutritional and health care and family planning kind of services.

How are we going to deal with what clearly today is a very strong decided influence of alcohol, of cigarettes, of things that traditionally government has not leveraged? We have not tried to leverage behavior in certain areas over those kinds of things, and clearly today they have a very important influence on brain size, and on the development of underweight babies.

In looking at that pattern, how would you help us either redeploy or beef up our sources? How would you help us deal with the fact there are some voluntary actions out there that might be more significant than those things over which we have control?

Ms. BLACKWELL. I think there is an answer to that question. Part of it is comprehensive prenatal care. One of the things I have found, both from reading literature and in talking to people, is that overwhelmingly a woman wants to do what is right for her baby. Some people have access to information so they can easily find out what is right for the baby, and others are deprived of access to the information.

We may not be able to do anything about smoking in general or alcohol consumption in general. And we may differ about what we think ought to be done about it. But I do believe firmly, and the literature seems to be firm, that when women are pregnant, and find out about the danger of smoking, very often they will stop smoking during the time that they are carrying the baby.

Women who find out that about the dangers of alcohol consumption very often stop consuming alcohol while they are carrying the baby.

Women who find out that over-the-counter drugs and other drugs may be harmful to their babies will suffer headaches and other problems rather than take a medicine to deal with it.

I don't have data regarding these patterns among large numbers of women, but we do have data from programs providing comprehensive prenatal care that can document the fact that this happens.

Mrs. JOHNSON. How about the teenage mother population?

Ms. BLACKWELL. Prenatal.

Prenatal programs that deal with teenagers also can document that teenagers who are educated about what to do, often will do it. Some will not. But many will.

Mrs. JOHNSON. Is it a question of inclusion of all these things in the approach to nutritional and health care?

Ms. BLACKWELL. That is right.

Mrs. JOHNSON. In a sense, the WIC program is too narrowly focused.

Ms. BLACKWELL. Prenatal care, as presently presented, may be too narrowly focused and should be more comprehensive. The cost benefit data I have presented today refers to comprehensive prenatal care—not just present prenatal care.

Mrs. JOHNSON. Do you also include addressing these type of things we talk about today in a comprehensive way?

Ms. SALISBURY. Yes.

Dr. KENNEDY. If I could make one comment before we get off the subject, while I agree that prenatal care can be a part of the answer to things like dealing with substance abuse, in the data we have looked at for teenage pregnancies, you typically see a pattern of what I call too little, too late.

If I were thinking about a long-term strategy, I would pursue avenues like the educational system, building in some of these items in the curriculum, because in the women we have looked at in Massachusetts, approximately a third of 1,328 women were teenage prenatals; and on the average they came into the prenatal care system in late second trimester. Although you can do something with that period of pregnancy—and I am not discounting that—thinking about the effects of substances like alcohol early on in pregnancy, if we could have, we would have wanted to get to them earlier in pregnancy.

The other issue really is one of general versus specific, although there is a lot of general information around on misuse of smoking, alcohol, whatever. It is amazing how many women—and this isn't necessarily limited to any economic group—have little or no information on these figures. When I was doing clinical practice in the early 1970's and had sessions with women who had delivered low birth rate infants in trying to look at future pregnancies in a preventive approach and got into the discussion of moderate consumption of alcohol, and the look on women's faces was: Could the alcohol I had consumed in part have contributed to this? These were the sort of women I would call aware women, but alcohol consumption is such a part of our social atmosphere and the thought of one or two glasses of wine at dinner doesn't necessarily connect in women's minds that this is bad.

I agree with the comment that once they know——

Mrs. JOHNSON. Once they know.

Dr. KENNEDY. But I think almost preconception, somehow we have to get that sort of information out to the general public, because some of our time is already lost if we are beginning just during the prenatal period.

Ms. SALISBURY. We certainly could see that as being part of the national education campaign we were talking about.

Dr. WEIKART. I would like to add one more dimension, the educational side, because in a sense one way to reduce the problem is to have ways of not having it occur at all. I think that the power apparently of early childhood education of 3 and 4 years of age, giving young children a different cycle of life, a different way of proceeding through life, is so powerfully demonstrated by a sequence of studies that suggesting that, in the same breath we are talking about low birth rate and these kinds of things, we also have to keep thinking there is another side of the coin.

We can't repeat the lung cancer specialists conference, which is to talk about operating techniques. They have to also spend time talking about reduction of environmental causes of lung cancer, which is equally important. I think that is one of the issues here, too.

Chairman MILLER. Let me submit for the record the case of alcohol and pregnancy. On page 3 of Dr. Ouellette's statement we see from long recent studies that all women tend to decrease alcohol intake during the early months of pregnancy presumably from a combination of factors. Later she notes that even women who drank heavily have stopped drinking during the pregnancy. Other studies show that women are generally very highly motivated to alter their drinking habits in order to produce offspring with the least possible risk.

We will try to get these studies for committee members. It is important to learn how attitudes are changed and more positive behavior begins.

Mrs. JOHNSON. Isn't it interesting that we have a WIC program, we have medicaid which doesn't reach everyone—there has been no ability of research to penetrate those programs. In other words, this information, I assume, wasn't discovered in the last 48 days, you know. Yet it hasn't been fed back, so that part of our medicaid approach requires—I mean, look what we have been willing to do in terms of parental permission for pregnancy. We have been willing to ask Government to require certain things. I don't support it. That is a bad example.

But the point is that we have the ability to require that certain information be made available and be out there. It is much like Prozeltor said at one of our very first hearings and examples he gave. We have to find some better way to bring our knowledge, and wisdom, and understanding to bring to bear to those programs on which we do affect people's lives and expend public moneys.

Chairman MILLER. I couldn't agree with you more. We are caught in a double bind. We have hundreds of thousands of people waiting to receive WIC, just to get the benefits we already know it offers.

Informational flow is one of those benefits. Many of the women in the WIC program are getting medical advice for the first time.

Mrs. JOHNSON. We could probably do it for free.

Mr. LELAND. One of the things we found in the infant mortality task force we instituted in Houston was that there was a lot of information available, but none was collated. There was not a central receptacle for information to be disseminated to organizations and individuals, for that matter, in order that statistics could be gathered, in order to learn about the specific problems in specific areas.

I suspect that the same problem holds with programs like WIC and medicaid—that the problem is even further complicated because localities don't know how to solve these problems. Sometimes, the program WIC itself, and medicaid advocates find themselves in a quandary because the information is not found there.

I suggest that maybe one of the things we ought to do is to possibly set up some kind of opportunity for a central computer bank for the country.

Chairman MILLER. If the gentleman will yield. This concept has now been touched on three different times, including Congresswoman Mikulski's earlier question; why can't the National Council on Alcoholism, for example, distribute information through WIC, directed at pregnant women. We are all anxious to better link up the resources that currently exist.

Mrs. JOHNSON. That is right.

Chairman MILLER. Hopefully, out of the life of this committee, we will learn how to better that link existing resources. There are many of us that would like to expand those resources, both public and private.

And in your brief you point out that if we can get A to talk to B, and B to talk to C, that there is an opportunity to eliminate some of the gaps in infant mortality that exist now between certain groups.

Ms. SALISBURY. If I could address these last points, our petition is designed to meet both of those problems. We asked for an appointment of a Select Coordinator within HHS who would have complete oversight over all the maternal and child health programs and would be a direct link to the WIC program, as well.

One of the coordinator's functions would be to provide a clearinghouse of information to virtually every program that is under his or her jurisdiction, so that programs and State agencies would have access to the wealth of information that has already been pulled together, so we are not reinventing the wheel.

Second, we did ask, Congresswoman Johnson, that a standard of comprehensive prenatal care be defined and mandated by the Federal Government which is absolutely within HHS' current jurisdiction to promulgate. They need no further legislation to do that. There then would be one comprehensive prenatal care standard for anyone receiving Federal dollars in their prenatal care whether it is medicaid dollars or ESPDT dollars or community health centers.

Comprehensive prenatal care, which would include precisely the kind of health education we are talking about, could easily be the minimum standard and could maximize the use of Federal dollars and prevent some of these problems.

Ms. BLACKWELL. Regarding statistical data, one of the biggest frustrations in compiling the data for our study was the lack of data available from the national Government. Up until today, we couldn't get data broken down by race beyond 1979. I think this is particularly indicative of priorities, because this is a country that has its finger on the pulse of economic indicators every week and every month. We know from the CPI whether butter is going up or cars going down, literally week to week.

Yet, for an indicator as important to the Nation's health as infant mortality, we could not get any data, culling all sources available beyond 1979.

Chairman MILLER. I don't want to hold my colleagues or the panel here much longer.

Dr. Weikart, your study is almost too good to be true. Policymakers are always looking for programs that help people and save money at the same time.

Who has commented on your study? What kind of hurdles have you overcome to reach this point?

Dr. WEIKART. I think a lot of outside professionals have been involved in it. I think perhaps more important than outside people commenting has been the fact that of recent years the data have come from a variety of sources other than ourselves. For example, the crime data come from police blotters and are provided by the police departments. The welfare data come from the State welfare division—not from us.

In a sense, I, too, have breathed a kind of sigh of relief that some of the outside groups that have no stake in it whatsoever have been able to supply information and have been confirming the information we have gathered and dealt with ourselves. So, it is passed, in a sense, scientific review as well as perhaps—and from my perspective, even more important, because I have had confidence in the scientific aspect all along, has been the fact that outside totally disinterested people have collected specific data based on this. So, in a way it stands as a laboratory-style study.

I wouldn't expect to find the same extent, equivalence, some extent of it, in all kinds of outside programs. At least it shows what can be done.

Chairman MILLER. Dr. Falkner, Angela Blackwell said earlier that if we don't deal with the problem of low birth weight, that in and of itself may negate the kind of progress we are making in the technological sense of being able to keep a smaller, more premature baby born alive after birth, that technology may not necessarily overcome the harm caused by the increased number of low birth weight babies.

Do you concur in that?

Dr. FALKNER. Absolutely. I think the wonderful technology which neonatology has developed, particularly in the last 10 years, I doubt whether it can really get much better. I think it could be more available all over the world. But where it is of a particular high standard at the moment, I think they have just about reached the point of excellence.

So, I think Angela Blackwell is absolutely right. I think that the production of more and more infants of low birth weight will increase the infant mortality rate.

Chairman MILLER. Beyond the capability of that technology?

Dr. FALKNER. I think so, yes.

Chairman MILLER. You sat here and listened to the testimony and conversation we have had today on prevention issues. Are there currently disincentives to the deployment of preventive strategies?

Dr. FALKNER. Yes; I think there are. I think that——

Chairman MILLER. In the public advocates petition presented to the committee today, there is an outline of some of these issues: the questions of whether or not you are eligible for AFDC, whether or not it is your second pregnancy. These are the kinds of items that have become counterproductive to our overall goals.

Are there any similar problems in your general field?

Dr. FALKNER. I get the distinct impression that treatment, better treatment, putting money behind good treatment, new discoveries of treatment, service treatment all the time, is rather dramatic and is most acceptable to the population; that physicians and physician attendees are doing something. They are trying to find a cause for cancer. They have made breakthroughs in the treatment of leukemia in children.

I think all these things are excellent. They are very acceptable. But if you ask the population to concentrate on prevention of a particular disease, a particular entity like a low birth weight infant, it is not very dramatic. The population is not nearly so inclined to support, in my opinion, that approach. The approach of prevention is hard to sell.

Chairman MILLER. Thank you.

Do you have any further questions, Mrs. Johnson?

Mrs. JOHNSON. No; thank you.

Chairman MILLER. Thank you very much for staying with us all day and for your presentations.

The task force will stand adjourned.

[Whereupon, at 3:50 p.m., the task force adjourned subject to the call of the Chair.]

[Material submitted for inclusion in the record follows:]

ADDITIONAL QUESTIONS BY CONGRESSMAN BLILEY AND CONGRESSWOMAN JOHNSON—SELECT COMMITTEE ON CHILDREN, YOUTH, AND FAMILIES

Congressman Bliley of Angela Blackwell: Some have suggested that the higher Black infant mortality rate is a reflection of the higher percentage of "high risk" pregnancies among Black teenagers as compared to white teenagers. Can you tell us the proportions of the Black and white populations that are at risk? How do these two different high-risk pregnancy rates affect your focus on the infant mortality gap between the two populations?

Answer: As I stated in my testimony of June 30, 1983 before the Select Committee on Children, Youth and Families, teenagers who become pregnant are at greater risk of having low-birth weight babies, and low-birth weight babies contribute directly to high infant mortality rates. Using an approximate 1980 figure of 500,000 Black births per year, an infant mortality rate of 20 per 1,000 (actually the infant mortality rate for Blacks in 1980 was 21.4 per 1,000) and a low-birth weight rate of 13 percent (which is the low-birth weight rate that was recorded in our survey of 45 cities), we can determine that approximately 10,000 Black babies will die every year and 65,000 will be born of low-birth weight. Assuming a teenage pregnancy rate of 27 percent (which was the rate in our survey done of 45 cities), we can determine that approximately 18,000 of the 65,000 low-birth weight babies can be attributed to Black teenage births. While this is a significant number, it is obviously not the whole problem.

There can be no doubt that given the high percentage of births to teenagers in the Black community, that the infant mortality rate could be drastically reduced if efforts only focus on reducing teenage pregnancies. Comparing Black teenagers to white teenagers, white teenagers also are at high risk of having low-birth weight babies but percentage-wise, fewer white teenagers give birth and those who give birth are more likely to have access to prenatal care because they are in higher income brackets and have access to more information. In comparing the different risks to teenagers white and Black, both are at a higher risk because of lack of information and lack of access to prenatal care, but the white teenager does have advantages which probably make their low-birth weight and infant mortality rates lower.

Congresswoman Johnson of third panel witnesses: I am concerned that little attention has been paid to the importance and cost effectiveness of family planning as a preventive service. I would be interested to hear what our witnesses have to say on this topic, if they would care to venture an opinion.

Answer: The cost-effectiveness analysis that was provided in the infant formula petition focused on the cost effectiveness of providing comprehensive prenatal care. A small portion of prenatal care does include family planning services. It is important to note, however, that the costs of the prenatal care are much higher than the costs of providing family planning information. Comprehensive prenatal care can prevent the birth of a low-birth weight baby, but it prevents it through medical services, hospital services, and many other expensive services. Many low-birth weight babies are born because the babies are not wanted, because they were born to teenagers who did not have adequate birth control information because they were born to low-income families who could not afford prenatal care. Family planning services could prevent these births and also prevent the necessity to spend massive amounts of money on prenatal care. Obviously, any money put into family planning is extraordinarily cost effective; even more cost effective than the prenatal care that we were proposing.

AUGUST 15, 1983.

Dr. STANLEY GREENSPAN,
Mental Health Research Center,
Adelphi, Md.

DEAR DR. GREENSPAN: This is to express my personal appreciation for your appearance before the Select Committee on Children, Youth, and Families' Prevention Strategies Task Force at its first hearing. Your participation contributed to making the hearing a success.

The Committee is now in the process of editing the transcript of the hearing for publication. It would be helpful if you would go over the enclosed copy of your testimony to assure that it is accurate, and return it to us with any necessary corrections.

Also, Representatives Bliley and Vucanovich have submitted the following questions for you for inclusion in the printed record:

Mr. Bliley: In an article published last year, entitled "Developmental Morbidity in Infants in Multi-Risk Factor Families: Clinical Perspectives," you said that "if we give due weight to the degree of impairment or morbidity present in each of these multi-risk factor families, rather than focus on reaching the largest number of families per unit of expenditure, the need to reach this often neglected group becomes compelling." You also mention in your testimony that early intervention with multi-risk factor families is clearly "cost effective" in economic and human terms as compared to special education programs addressing the problem when the basic personality of the child is already developed. Are you making a statement about the targeting of our public health resources? If so, could you clarify that? Do you feel that more of the existing public services funds should be targeted to interventions for multi-risk factor families with infants? (Article referred to in question is attached.)

Mrs. Vucanovich: You deal in your work with some of the most disadvantaged, dependent individuals in our country. These people, parents with infants and children, are often unable to care for themselves in the most basic of ways. Yet, your work seems to affirm the value and dignity which belongs to them, as it does to all human beings. What is your opinion regarding recent controversies of handicapped newborns? How do you deal with the conflicting ethics in your profession regarding the quality of life versus the dignity and value of all human life?

Let me again express my thanks as well as that of the other members of the Committee, for your contribution.

Sincerely,

GEORGE MILLER,
Chairman,
Select Committee on Children, Youth, and Families.

DEPARTMENT OF HEALTH & HUMAN SERVICES,
Adelphi, Md., September 7, 1983.

Hon. GEORGE MILLER,
Chairman, Select Committee on Children, Youth, and Families,
U.S. House of Representatives,
Washington, D.C.

DEAR MR. MILLER: Thank you for letting me take a look at the transcript of the hearing before the Select Committee on Children, Youth, and Families' Prevention Strategies Task Force. Enclosed is a copy of the transcript with some minor corrections. Also enclosed are the answers to the two additional questions posed by Mr. Bliley and Mrs. Vucanovich.

I would like to express my appreciation for the attention the Select Committee Task Force is bringing to important challenges regarding the health, mental health and education of our children and their families.

Please let me know if I can be of any further assistance.

Sincerely yours,

STANLEY I. GREENSPAN, M.D.

ANSWERS TO QUESTIONS RAISED BY MEMBERS OF SELECT COMMITTEE ON CHILDREN, YOUTH AND FAMILIES, U.S. HOUSE OF REPRESENTATIVES (STANLEY I. GREENSPAN, M.D.)

1. Mr. Bliley's question on targeting of resources toward multi-risk factor families with infants.

The issue is not so much "targeting" of resources, but employing our resources in a more balanced manner. At present there are relatively little resources available to infants, toddlers and young children with a variety of development problems. The especially at-risk infants in multi-risk-factor families are an example of a group who traditionally have not received necessary medical help and educational services in the first five years of life. Part of the reason for this group presenting so many cognitive emotional problems by the time they reach school (and at the same time not having necessary services) is related to the challenges of effectively reaching this population. A balanced program of preventive services would include "outreach" services for families who don't come in for traditional services. In addition, special patterns of services, as described in the article on infant morbidity, would offer these types of families the opportunity for an ongoing relationship with one member of the therapeutic team, help with stabilizing survival needs and preventive intervention services geared to individual differences in the infants and their families (including such individual differences such as babies with hypersensitivities, parents with psychiatric illness or severe stress reactions.

Our health and educational services have been geared toward the notion of a "captive audience." In other words, in a hospital huge expenditures are made for a premature baby to help that baby survive and function as competently as possible. If that baby leaves the hospital, however, no matter how at risk that baby is for a variety of developmental disturbances, little effort is made to provide follow-up care. Compared to the thousands and thousands of dollars a day that it costs to help that baby in the hospital, the relatively modest expenditures, such as $10.00 for transportation to bring mother and baby in for a follow-up visit is currently not being spent. Part of this relates to regulations which do not permit expenditures for home visits in some areas of the country or which do not permit expenditures for transportation; a critical issue in whether or not a family may obtain follow-up care. On the surface it may appear ludicrous when tens of thousands of dollars per day can be spent for a baby while in the hospital and $10 to $15 can't be spent to bring that baby in for the critical follow-up visit. Almost all the studies point to the family milieu and the support the baby receives in the first few years of life as the critical predictor as to how that baby will do later on. Preventive intervention programs to work with the family and assure good follow-up care is therefore especially important. In other words, while it is certainly critical to provide the best possible programs for a baby while he or she is in the hospital, the research points to the time when the baby goes home as the critical period for determining how that baby will perform in an emotional, intellectual, and social sense as that baby grows up.

Is this lack of follow-up care and balanced programs for the child simply a matter of "poor" regulations that need to be rewritten, or is there a fundamental problem with the overall philosophy that underlies our health and educational system?

I believe it's the latter. To continue the example given earlier, just as we provide to a "captive" infant and family in the hospital, we also provide special educational services of a modest nature to children once they're in school. Again, a youngster is in a federally, state, and community-supported facility. From a policy perspective, the notion of providing transportation or reaching into the home to help families has not been possible even though the cost per family for these kinds of programs is basically far less than hospital-based care and not a great deal more than in the extra help we give children for "special education" once they're five and six years of age in the school system. Therefore, it appears that it is not the resources but more the philosophy of continuing versus intermittent support for families. Obviously, one needs to balance the issues of intrusiveness and control with supporting the family's autonomy and ability to choose for themselves. Nevertheless, there are many families who would clearly elect to have preventive health, mental health, and educational services for their infants, toddlers, and young children if these services were made available in a way that was consistent with the family's needs.

Therefore, the issue may be viewed from the perspective of "targeting" resources. Unfortunately, at present, there's such an unequal distribution of resources in terms of a child's age (i.e., almost no services for the 0–4 year-olds), it may be more appropriate to discuss this issue in terms of a balanced approach to resource allocation, and the way in which resources are used to support innovative preventive service programs.

2. Mrs. Vucanovich's question on the ethics regarding quality of life versus the dignity of life and value of all human life.

Recent debates concerning "handicapped newborns" raise a number of important issues. As medical technology has advanced, it has become possible to help babies who in the past would not have survived to survive and lead, in many instances, lives of dignity and self-fulfillment. As research continues, the ability to help babies

overcome handicaps may even be greater. My own view is consistent with the part of your question which places an emphasis on the dignity and value of all human life. I believe that we cannot separate issues of the quality of life from issues of the dignity and value in all human life. I would approach the implied polarity here slightly differently than it is usually approached.

The question of the "quality" versus the dignity and value of all human life is often raised as a polarity to help us deal with the issue of when it is appropriate to provide "heroic" efforts to save the baby's life and when physicians should provide "less" heroic efforts. There's a presumption that the health profession can make determinations as to the subsequent quality of that life and use this to determine how "heroic" to be. While this is an important issue and one that the medical profession and ethicists have been struggling with for some time now, I believe there's a more important issue that is easily obscured in looking at the question only in this way.

The more important issue has to do with both the dignity, value, and the quality of life. Currently, while many of us clearly support the notion that all human life is important and should be treated with dignity, our programs in the health, education, and mental health areas do not maximize the quality of life for those infants who are able to survive with or without heroic efforts. In other words, we need to integrate our notions of quality and the dignity and value of all human life. Interestingly, some of the artificial polarities that are currently topics of debate may fall away if we integrate these values. Let me be more concrete. There are many babies now with a variety of disabilities who would be capable of having a life of greater quality; that is, they could accomplish more intellectually and emotionally and be more capable of reaching their own goals if we had adequate programs in the first three to five years of life to support their physical, intellectual, and emotional growth. Unfortunately, such preventively oriented programs do not exist, and potentials that are present even with the disabilities are never reached. I believe this is true for many intellectually and emotionally compromised children. Therefore, we are not maximizing the quality of their lives. Part of the pessimism over babies who are severely compromised is based on the fact that many have observed their marginal development. Yet, if we improved our preventively oriented care in the first three to five years, the outlook for many infants born with handicaps would be vastly improved. In other words, their "quality of life" would be improved. This improvement in the quality of life would be a concrete way of stating our commitment to the "dignity and value of all human life." I believe, in a subtle manner, some of the debates about quality versus dignity and value of all human life is in part based on our lack of commitment to our handicapped infants and young children as they grow (in comparison to the issue of survival). I should also add that if we plan to work with our handicapped infants and young children we must also work intensively with their families.

In summary, I believe our policy should be one which supports the quality, dignity, and value in all human life. By improving our preventively oriented services, these important goals would be unified under a broad program and broad philosophy regarding preventive health, education, and mental health care.

Developmental Morbidity in Infants in Multi-Risk-Factor Families: Clinical Perspectives

(By Stanley I. Greenspan, MD)

Preventive intervention programs designed to reduce infant morbidity often focus on the service programs that will offer the most help at the lowest cost per family. That is, the programs seek to reach families that will use a service if it is available for families that would require only modest encouragement to use the service. There are families, however, who will not use, or are not appropriately served by, prevention programs providing only the traditional services, whether or not the programs incorporate modest outreach efforts. These are the multi-risk-factor families that require highly innovative, comprehensive service programs with extensive outreach to win their their participation. If we give due weight to the degree of impairment or morbidity present in each of these multi-risk-factor families, rather than focus on reaching the largest number of families per unit of expenditure, the need to reach this often neglected group becomes compelling. In planning service programs for them, account must be taken of the incidence and prevalence of preventable disorders in the context of the degree of developmental impairment that is likely in the children without a comprehensive program.

In multi-risk-factor families, the parents are often psychiatrically impaired, social and economic stress is usually high, and the parents are generally deficient in a va-

riety of coping functions (including self-care, planning for the future, and judgment). These families are at risk not only of infant mortality but of infant morbidity as well, particularly in the area of psychological and social functioning during the first years of life. The challenge of providing services to ensure a healthy baby physically during the first month and year of life is likely to be actively pursued, whereas the challenge of supporting a family environment in which adequate social and psychological development can take place is too often ignored. The same poor coping capacity of multi-problem families that increases the risk of perinatal complications also contributes to postnatal morbidity.

Even when the newborn infant in a multi-risk-family is constitutionally healthy and robust, in many cases a relative deterioration in functioning is often observed during the first month of life rather than the expected improvement. This downward trend appears to continue until suitable clinical and social system techniques are applied (for example, to improve an infant's alertness and ability to focus). It is encouraging that appropriate clinical services provided during the first year of life can decisively reduce maladaption—that they can, for example, improve the child's regulation of somatic functions, increase his interest in the world, foster the formation of human relationships, and further the development of capacities for differentiation, communication, and exploration. When, however, such services are not offered to these families, in many cases deterioration in the child's expected functioning during the first and second year of life is almost inevitable.

Such deterioration can lead to severe and firmly established difficulties that will adversely affect the child's basic capacities. The child may be hampered in organizing his behavior, mood, and thoughts, in laying foundations for the testing of reality, in controlling his impulses, in anticipating the future, in internalizing limits, in forming ethical and moral judgments, and in developing self-esteem. In essence, without services, the best that might be reasonably expected for many of these youngsters would be that they would develop only severely primitive character organizations along asocial, antisocial, and concrete lines. The less fortunate of these children are likely to become overly or borderline psychotic or to experience markedly uneven personality development. Nevertheless, there are case by case impressions that some babies begin life with superior capacities, such as a remarkable ability for self-consolation, for regulation of attention, and for social interaction, and thus can progress even in a deprived environment.

The focus of this paper is on the risk of infant morbidity, particularly psychological, social, and cognitive malfunction. My colleagues and I in the Clinical Infant Development Program (CIDP) at the Mental Health Study Center of the National Institute of Mental Health in Adelphi, Md., have been able to obtain an in-depth picture of the unfolding of infant morbidity in the multiple-risk-factor family. Families are referred to the Center because of servere psychiatric illness or personality impairment that is believed to interfere with a child's primary nurturing and development or because of the family's demonstrated difficulty in rearing an older child who is manifesting severe psychological, social, and cognitive problems.

We use the term "multiple-risk-factor families" for those not only at risk of infant mortality and perinatal morbidity, but also for those in which the children appear to be at risk of "developmental morbidity." Our clinical impression is that families at the high-risk end of the spectrum in respect to any single risk factor, for example, substance abuse or poor nutrition, often evidence multi-risk factors. Such families have also been described as "multi-problem," "hard to reach," "crisis-oriented," and so forth (1-9). In additon, they have been classified by the way they use the service system and according to the kinds and number of problems they have. Results of the latter approach suggest that poverty or welfare status is not the only identifying characteristic, since families across the socioeconomic strata evidence the same mulit-problem characteristics (10).

In spite of definitional differences, there has been general consensus on the clinical characteristics of these families. They tend, for example, to think only in concrete terms, to be need-oriented, and to have difficulty in anticipating the future and conceptualizing the consequences of their actions. The parents operate on a survival basis, often competing with their children for concrete, as well as psychological and social, supports (1,5,9,11-14). Although most of the families share these characteristics, an individual family may differ in some respects. Some of the families evidence clearly diagnosable mental illness such as a psychosis, and some, a predominance of severe antisocial and asocial personality patterns. Others are characterized by passivity and inadequacy in coping with life's daily challenges. Individual clusters of symptomatic behaviors also characterize the families—psychotic symptoms, child abuse, spouse abuse, marital difficulties, crime delinquency, alcoholism, physical illness, and suicide (1,2,4,6,10).

Estimates vary regarding the use of health, social services, and welfare systems by these families. However, the significance of the challenge that they present is indicated by a study conducted some time ago (2), in which 6 percent of the study population was found to be using 45 percent of all public health resources and 55 percent of all social, psychiatric, and other auxiliary services. It has been estimated that this 6 percent use approximately 70 percent of all public expenditures for health, social, and auxiliary services (report of the congressionally authorized Joint Commission on the Mental Health of Children, 1965). Moreover, the problem may be much greater now.

CHILDREN IN MULTI-RISK-FACTOR FAMILIES

Few in-depth studies have been conducted of the development of the children in multi-risk-factor families. In the classic descriptive study of Pavenstaedt (1), only 13 of such families (which had 40 to 50 children between the ages of 2½ and 6 years) were studied. Nevertheless, the clinical impressions from the study were striking. Almost all the children showed social and psychological characteristics more consistent with 1½ to 2-year-olds in their egocentricity and need-orientation. Their ability to use a symbolic (or representational) mode to plan for their own needs and to consider the needs and actions of others was limited, and they had variable self-esteem. They tended to think in fragmented, isolated units, rather than in cohesive patterns. They were not capable of goal-directed organized action and were limited in their ability to socialize and interact appropriately for their age. The children already had an ingrained defeatist attitude and the core of an aimless (either asocial or antisocial) personality. The conclusion of the study was that there was a direct need to understand the developmental process in such children from the prenatal stage into later childhood.

Subsequently, no in depth longitudinal studies have been done beginning with the prenatal period and following the children in multi-risk-factor families for 5 or more years—as is necessary to obtain information on how the behavioral patterns of these children develop and gain insight into the repetitive, multi-generational nature of these families' problems. It seemed especially critical to identify the adaptive and maladaptive developmental patters of such children and their families over time and to determine the clinical and service system techniques that are appropriate for preventive intervention. Therefore, my colleagues and I at NIMH's Mental Health Study Center undertook a study of multi-risk-factor families. The Center has provided periodic evaluations of the children in such families, based on standardized recorded observations (for example, video tapes of interactions between the children and their care-givers). We have been able to study in depth for 2 more years some 50 multi-risk-factor families with more than 200 children. (Details of the efforts made to recruit these families and of the clinical service approaches and assessments uded will be described in another paper.)

Families were referred to the Clinical Infant Development Program as the result of an active outreach effort aimed at the "most difficult" families. A family was referred to the program if it met three criteria: (a) a history of difficulty in providing basic nurturing for an older child and in facilitating that child's development, (b) evidence of disturbed development in that older child, and (c) limitations in the mother's current functioning that could be expected to interfere with the provision of primary nurturing to a new infant. It quickly became apparent to the staff at the Center that we were dealing with families of various composition that were evidencing additional risk factors such as psychiatric impairment, low educational and socioeconomic status (not only in the case of the parents who were the potential participants in our program, but also in the case of their own parents), high levels of social and psychological stress during the woman's pregnancy, and varying degrees of nutritional deficits and substance abuse.

It quickly became apparent to us that infant morbidity, infant mortality, and perinatal morbidity all may be related to the same common factors—incapacities of the infant's care-givers for self-care or for care of another or for planning, anticipation, or organization (around a pregnancy or a child's developmental process). In our group of multi-risk-factor families, successful prenatal intervention reduced the expected levels of both infant mortality and immediate postnatal morbidity; few of the babies were born with physical or neurological handicaps. Yet we quickly observed that the next challenge, and in many respects the far more difficult one, was to reduce developmental mobidity.

PRELIMINARY REPORT ON OBSERVED TRENDS

Because I am reporting in the middle of our study, I will discuss only some preliminary trends observed in children's development. These trends will be presented in a theoretical framework in which the stages of a child's early development and the adaptive infant and family patterns that can be expected in each phase of the child's development—as revealed in our work—are conceptualized (15–17). The trends described will not apply to every multi-risk-factor family, since different families and different infants apparently experience arrest at various levels of development. Intensive work with multi-risk-factor families, however, has shown us that they rarely are able to negotiate an infant's development into the second year of life without there being evidence of disruption in their infant's development and a need for specific services to overcome it. We have been able to identify the point at which the family fails to support the infant's development and at which the subsequent disordered development occurs. We also have gained a preliminary impression of a distribution in which the more disturbed families show difficulties early in the infant's fiscal year, whereas in some of the less disturbed families, there is no evidence of the likelihood of morbidity until the second year of life. In general, none of the multi-risk-factor families studied have been totally free of the morbidity described in this section.

We have observed babies at the Center who during the first few days of life are for the most part well in terms of weight, size and overall physical health status, but who have difficulty in regulating social responsiveness, establishing habituation patterns, and organizing their motor responses. Some of them are withdrawn and unresponsive to animate stimuli: others are hyperlabile and overly responsive. Nevertheless, in contrast, a number of our babies also seem to be in optimal condition, even in terms of the soft neurological signs, and are appropriately adaptive in their initial capacity for homeostasis (self-regulation and an emerging interest in the world).

Yet, in general, babies in our program, most of whom were at high risk prenatally but who had normal patterns of development perinatally (prenatal intervention having assured adequate nutrition and other supports, including appropriate medical care) show significantly less than optimal development as early as the first month of life. Pediatric, neurological, and Brazelton neonatal examinations at 1 month of age, for example, show developmental progression but not the increased capacity for orientation, habituation, self-consolation, and social responses characteristic of a normative population.

By 3 months of age, instead of a capacity for self-regulation, organization, and an interest in the world, a number of our babies show increased tendencies toward lability, muscle rigidity, gaze aversion, and an absence of organized sleep-wake, alert, and feeding patterns. The caregivers, instead of having an overall capacity for offering the babies comfort, protection, and an interest in the world, either withdraw from them and avoid them or over-stimulate them in a chaotic and intermittent fashion.

At about the ages of 2 to 4 months, we expect to find in the infant the beginnings of a deep rich emotional investment in the human world, especially in his primary care-givers. We also expect a human environment that will "fall in love" with the child and will woo that child to fall in love in turn, in an effective, multi-modal, pleasurable manner. Instead, a significant number of these children exhibit a total lack of involvement in the human world or an involvement that is nonaffective, shallow, and impersonal, and we see care-givers who are emotionally distant, aloof, impersonal, and highly ambivalent about their children.

Between 3 and 9 months of age, we expect an infant's capacity for interacting with the world in a reciprocal, causal, or purposeful manner to further develop and form a foundation for his later organized causal behavior or thinking (reality orientation and testing). Instead, in the multi-problem families, the child's behavior and affects remain under the control of his internal states in random and chaotic or narrow, rigid, and stereotyped patterns of interaction. The child's environment, instead of offering the expected optimal contingent responsiveness to the child's varied signals, tends to ignore or misread them. The child's care-givers are overly preoccupied, depressed, or chaotic.

Toward the end of the first year of life and the beginning of the second, a child in a multiple-risk-factor family, instead of showing an increase in organized, complex, assertive, and innovative emotional and behavioral patterns (for example, taking his mother's hand and leading her to the refrigerator to show her the kind of food he wants), tends to exhibit fragmented, stereotyped, and polarized patterns. These toddlers may be withdrawn and complaint or highly aggressive, impulsive, and disor-

ganized. Their human evironment tends to be intrusive, controlling, and fragmented. The toddler may have been prematurely separted from his care-givers, or the care-givers may exhibit patterns of withdrawal instead of admiringly supporting the toddler's initiative and autonomy and helping him to organize what are now more complex capacities for communicating, interacting, and behaving.

As the toddler's potential capacities continue to develop in the latter half of the second year and in the third (18–36 months), profound deficits can be more clearly observed. The child, instead of developing capacities for internal representations (imagery) around which to organize his behavior and feelings and for differentiating ideas, feelings, and thoughts pertaining to the self and the non-self, either develops no representational or symbolic capacity, or if the capacity develops, it is not elaborated beyond the most elementary descriptive form so that the child's behavior remains shallow and polarized. His sense of the emerging self, as distinguished from the sense of other people, remains fragmented and undifferentiated. The child's potentially emerging capacities for reality testing, impulse regulation, and mood stabilization are either compromised or become extremely vulnerable to regression. In other words, we see patterns either consistent with a later borderline and psychotic personality organization or severe asocial or antisocial impulse-ridden character disorders.

At this stage, the underlying impairment manifests itself in the child's inability to use a representational or symbolic mode to organize his behavior. In essence, the distinctly human capacity of operating beyond the survival level, of using internal imagery to elaborate and organize complex feelings and wishes and to construct trial actions in the emotional sphere. and of anticipating and planning ahead are compromised. In many of our families, the parents simply do not hve these capacities. Even when they are not under emotional distress or in states of crisis or panic, they do not demonstrate symbolic mode, as evidenced in the lack of verbal communication (only one aspect of symboiic communication) and in the lack of symbolic play. Such families tend to be fearful and to deny and fail to meet needs in their children that are appropriate for their ages. They engage the child only in nonsymbolic modes of communiction, such as holding, feeding, and administering physical punishment, and at times they misread or respond unrealistically to the child's emerging communications, thus undermining the development in the child of a sense of self and a flexible orientation to reality.

Needless to say, the mastery by the children in these families of higher level developmental tasks is even more difficult. At each new level of development, the infants and toddlers who for a variety of reasons have survived earlier developmental phases intact invariably challenge the multi-risk-factor environment with their new capacities, for example, with their capacity for symbolic communication. The healthier the toddler, the more challenging and overwhelming he is likely to be to the people around him. In a pattern that we have frequently observed, the child moves ahead of the parent (engaging, for example, in symbolic play around themes of dependency or sexuality), and thus the parent becomes confused and either withdraws from, or behaves intrusively, toward the child. Shortly, unless other more skillful care-givers are available, the child begins to regress to presymbolic modes of behaving. The child may be able to consolidate his higher level capacities when he begins to receive support from other systems, such as the school, and is capable of understanding his parents' limitations. These capacities, however, can only develop when the child is a little older. The youngster who experiences developmental failures, including the failure to develop a full representational or symbolic capacity (the basis for formal school experience later on), will unquestionably be handicapped in all subsequent opportunities for learning and copying.

CLINICAL AND SERVICE SYSTEM APPROACHES

On the encouraging side, we have found that in most of the families we work with, the maladaptive trends just described can be reversed. By carefully pinpointing the area in which a child's development first begins to go awry and by using organized and comprehensive clinical techniques and service system approaches, we have been able to effect significant reversals in the direction of more adaptive patterns. Many parents in our population began their childrearing as teenagers and have commonly experienced further deterioration in their own functioning and that of their infants with each subsequent birth. In most instances, however, even when a woman has had four or more children, we have been able to reverse this pattern of deterioration by means of appropriate clinical methods and services. In a number of these multi-risk-factor families, we have observed that after they enter our program, a gradual improvement takes place in the mother and a modest but positive

change in the first baby born thereafter. Then, if the family remains in the program and a second baby is born, the change in the family is dramatic and is reflected in the new baby's more optimal development.

For example, Mrs. E. was pregnant when she came to our attention. At first glance she appeared to the team social worker to be beyond help after she was found sleeping on the street. All of her children had been removed from her care by the county department of protective services after she had severely abused and neglected them. Mrs. E. appeared unable to think except in concrete terms, at times was psychotic, could not communicate her thoughts and plans, and seemingly lived by impulse only and a talent for survival. Shortly before the birth of her child a few months later, however, she entered our program, prompted by our outreach efforts. All of our collective efforts to induce Mrs. E. to use a support structure (for example, to obtain housing, food, or clothing) failed. Nevertheless, subsequently, of her own accord, she requested foster care for the new infant before severe trauma could be inflicted on the child. Mrs. E. maintained contact with this child and made a great deal of progress in treatment over a 2-year period. When she became pregnant again, not only could she care for the newest baby but was able to work and support an apartment. Thus far, with therapuetic support, she has nurtured a competent 11-month-old and also has become constructively involved with her older children.

Even when improvement was not so dramatic, the expected patterns of deterioration often did not take place in our families, and some of them became capable of adequately supporting the growth and development of their children. Many mothers, for example, who previously had children taken away and put in foster care became able to care for a new infant as well as for their older children. Also, some mothers who had been recurrently hospitalized for psychiatric illness in the past developed the ability to function appropriately with a new baby and have not been rehospitalized for psychiatric illness for 2 or more years.

We found that the babies in our families had a surprising capacity to recover from early developmental deviations. Even when an infant's development had deteriorated during the first 3 months of life (as evidenced by gaze aversion, muscle rigidity, and a state of lability), intervention with appropriate patterns of care (including special clinical techniques) could lead to adaptive homeostactic and attachment capacities within 1 to 2 months. Infants would become apathetic and withdrawn and begin to show delays in sensorimotor development when no one would read their signals on respond to them. However, with patient, clinically informed care, they would begin interacting with people and, within 2 to 3 weeks of intensive intervention, would begin to catch up developmentally.

IMPLICATIONS FOR CLINICAL SERVICES

I can discuss only briefly some of the principles on which a clinical and service system approach to multi-risk-factor families should be based. Although services for this population have been a subject of much study (2,5,9,12,13,18–27), I will try to present some perspective on the organization and services challenges for the child and family related to the child at each stage of his development.

A comprehensive approach requires that a number of elements of combined: (a) services that respond to concrete needs for survival (food, housing, and so forth), (b) a planned effort to meet the need of the family and the child for an ongoing, trusting human relationship, (c) specific clinical techniques and services that focus on the many lines of a child's development and that are specific to the child's tasks at each developmental subphase, and (d) a special support structure to provide at one site partial or full therapeutic day care for the child, innovative outreach to the family, and ongoing training and supervision of the program staff.

To respond to the family's concrete needs, various community agencies need to be organized to build a foundation for the family's survival. However, this approach alone will not ensure a family's survival, since many of the families, for a variety of reasons, are adept at circumventing offers of traditional supports.

The second component of a comprehensive effort, and one that is absolutely necessary for these families, is a human relationship with one or more workers. Such a relationship, however, is not easy to establish, because distrust is often ingrained in each parent as well as in the family as a unit. This human relationship needs to grow in ways paralleling the infant's development and needs to help the parents facilitate that development. To provide this human relationship, we have used both a team and a single primary clinician.

Organizing to respond to a family's concrete needs and offering the family a human relationship, however, are not enough. That human relationship must be able to help the parents understand some of their maladaptive coping strategies and

teach them how to deal both with their own primary needs and those of their infant. In addition, special clinical techniques and patterns of care (17) to reverse maladaptive developmental patterns in the areas of affect and social interaction, sensorimotor development, and cognition must be available at the appropriate time. Moreover, the intervention must occur over a sufficiently long period to allow the family's own strengths to take over and sustain it. We are speaking here then not of a crisis intervention approach over a few months but an approach that will be available to the families for several years at a minimum. We are found that after working with many of these families for some 2 years, the mother's capacity to nurture and facilitate the development of a new baby is significantly more advanced than when she entered the program pregnant with an earlier child. In other words, when the helping relationship is offered over a period of time, the frequently observed trend of multi-problem families to deteriorate further upon the birth of each subsequent baby (a trend that often starts when the parents are still teenagers) begins to be reversed.

In addition, the approach to the multiple needs of these infants and their families must be integrated. Simply offering nutritional advice (28) or educational counsel, providing cognitive stimulation, or taking an entirely infant-centered or entirely family-centered approach is not sufficient. The infants have individual differences that dictate special patterns of care; at the same time, the concerns of their caregivers and other family members have to be addressed. Each stage in the infant's and the family's development requires specialized clinical services and service system approaches (17).

CONCLUSION

In summary, infant morbidity, including social, psychological, and cognitive malfunction, is a major national concern. Yet, reducing the risk factors in infant morbidity has, perhaps necessarily, been considered of secondary importance to reducing the risk factors in infant mortality. As infant mortality is increasingly reduced through improved technology and improved delivery of services, more and more babies will be potentially capable of optimal development along social, psychological, and cognitive dimensions. However, as the families in our study have shown, the risks of infant morbidity are grave. These risks encompass a broad range of basic human needs—the fundamental need to survive associated with physical protection and care, the need to form some human attachment, the need for someone to read and respond correctly too a baby's signals, and the need to foster a youngster's own capacity for basic skills, such as reality testing, impulse modulation, mood organization, initiative, and mastery of new experience. These risks of morbidity will remain grave until the programs organized to reduce them take on an integrated prenatal and postnatal focus that extends over at least 3 to 5 years. In these programs, consideration must be given both to the infant's and the family's needs, and treatment approaches must build on the potentially solid constitution and developmental pattern of the infant. Only then will such intervention offer the promise of reversing the unhealthful trends that we have observed in multi-risk-factor families, in which one generation with many problems leads to another generation with many of the same problems. Many of the families in our study already represent the third or fourth generation of multi-risk-factor families.

Although the costs of offering programs of intervention are great, the costs of not offering them are even greater. The estimated 6 percent of the U.S. population that use 50 to 75 percent of all health, mental health, and social services account for economic and social costs that are compounded by the additional loss to society that these people might have contributed to the labor force and to other creative endeavors (2).

Programs of prevention are expensive, but they are not so costly as might be imagined, since even when services are offered to an entire high-risk community, only a small percentage of the families in that community will actually need the most intensive help. Selma Fraiberg, as director of a Michigan infant mental health program, found that in a program offering a range of preventive services including intensive individual clinical services, the average cost per family participating was $850 (personal communication, December 1980). In terms of providing screening and backup for an entire community, the cost per family for such preventive services would average out to a significantly lesser amount.

Perhaps we need to look at the cost-benefit ratio. Using cases from our own study to project the probabilities (based on observed family patterns and clinical assumptions) of different outcomes with and without preventive intervention, we found that benefits outweighed costs by five or six to one (depending on the degree of risk). In-

terestingly, in the cases at greater risk, in which initial costs might be high, the benefit to cost ratio was often better than in less severe cases, because the benefits of preventive intervention were relatively greater (29).

REFERENCES

1. Pavenstaedt, E.: The drifters. Little, Brown and Company, Boston, 1967.
2. Buell. B.: Community planning for human services. Columbia University Press, New York, 1952.
3. Curtis, J. L., Simon, M. Boykin, F. L., and Noe, E. R.: Observations on 29 multiproblem families. Am J Orthopsychiatry 34: 510–416 (1964).
4. Geismar, L. L., and La Sorte, M. A.: Understanding the multiproblem family: a conceptual analysis and exploration in early identification. Association Press, New York, 1964.
5. Minuchin, S., and Montalvo, B.: Techniques for working with disorganized low socioeconomic families, Am J Orthopsychiatry 37: 880–887 (1967).
6. Minuchin, S., et al.: Families of the slums. Basic Books, Inc., New York, 1967.
7. Riessman. F.: Role playing and the lower socioeconomic group. Group Psychother 17: 36–48 (1964).
8. Riessman, F., Cohen, J., and Pearl, A., editors: Mental health of the poor. Free Press, New York, 1964.
9. Zilbach, J. J.: Crisis in chronic problem families. Int. Psychiatry Clinics 8: 87–99 (1971).
10. Mazer, M.: Characteristics of multi-problem households: a study in psychosocial epidemiology. Am J Orthopsychiatry 42: 792–802 (1972).
11. Geismar, L. L.: The results of social work intervention: a positive case. Am J Orthopsychiatry 38: 444–456 (1968).
12. La Vietes, R.: Crisis intervention for ghetto children. Am J Orthopsychiatry 44: 720–727 (1974).
13. Levine, R. A.: Treatment in the home: an experiment with low income multiproblem families. In Mental health of the poor, edited by F. Reissman, J. Cohen, and A. Pearl. Free Press. New York, 1964. pp. 329–335.
14. McMahon, J. T.: The working class psychiatric patient: a clinical view. In Mental health of the poor, edited by F. Reissman, J. Cohen, and A. Pearl. Free Press, New York, 1964, 283–302.
15. Greenspan, S. I.: Intelligence and adaption: an integration of psychoanalytic and Piagetian development psychology. Psychological issues. Monograph 47–48. International University Press, New York, 1979.
16. Greenspan, S. I.: Louri, R. S., and Nover, R. A.: A developmental approach to the classification of psychopathology in infancy and early childhood. In Handbook of child psychiatry, edited by J. Noshpitz. Basic Books, New York, 1979. Vol. 2, pp. 157–164.
17. Greenspan, S. I.: Psychopathology and adaption in infancy and early childhood: principles of clinical diagnosis and preventive intervention. Clinical Infant Reports No. 1. International Universities Press, New York, November 1981.
18. Argles, P., and Mackenzie, M.: Crisis intervention with a multi-problem family: a case study. J Child Psychol Psychiatry 11: 187–195 (1970).
19. Berstein, B.: Social class, speech systems, and psychotherapy. Br J Social 15: 54–64 (1964).
20. Edelstein, R. I.: Early intervention in the poverty cycle. Soc Casework 53: 418–424 (1972).
21. Fantl, B.: Integrating psychological, social and cultural factors in assertive casework. Soc work 3: 37 (1958).
22. Gunter, B. G., and MacCorquodale, D. W.: Informal role strategies of outreach workers in family planning clinics. J Health Soc Behav 15: 127–135 (1974).
23. Lang, J.: Planned short-term treatment in a family agency. Soc Casework 55: 369–374 (1974).
24. Powell, M. B., and Monahan. J.: Reaching the rejects through multifamily group therapy. Int J Group Psychother 19: 35–43 (1969).
25. Reid, W. J., and Shyne, A. W.: Brief and extended casework. Columbia University Press, New York, 1969.
26. Sperebas, N. B.: Home visiting in family therapy. Family Therapy 1: 171–178 (1974).
27. Suarez, M. L., and Richetson, M. A.: Facilitating casework with protective service clients through use of volunteers. Child Welfare 52: 313–322 (1974).

28. Cravioto, J.: Malnutrition in infants: a developmental perspective. Paper presented at the scientific meeting of the Mental Health Study Center of the National Institute of Mental Health, Adelphi, Md., May 1980.
29. Greenspan, N.: Funding and cost-benefit analysis for a preventive intervention program. Paper presented a Pediatric Round Table on High-Risk Parenting sponsored by Johnson & Johnson Baby Products Company, Oct. 28–31, 1981, Key Biscayne, Fla.

RESPONSES BY EDWARD N. BRANDT, JR., TO QUESTIONS FROM CONGRESSMAN WILLIAM LEHMAN

Question 1. Although the general health of this Nation's Children seems to be getting better, we both agree that serious problems still exist: problems such as the continued high incidence of low birth weight babies, and a continued high rate of infant mortality. We both agree that something can and must be done to prevent these costly and unnecessary problems.

We may differ, however, when it come to an understanding of what role the Federal Government should play in maintaining and promoting the health of our children.

For instance: There is no disagreement that prenatal care has a positive effect on pregnancy outcome. The Administration, however, has continually proposed large cuts in Medicaid. This is the program that pays for prenatal care and delivery services for those who cannot afford them, including women most at risk of having unhealthy babies.

There is no disagreement that proper nutritional intake also improves pregnancy outcome including increasing the birth weight of the infant. Yet, the Administration's fiscal year 1984 budget proposed to hold the WIC program to the same funding level as 1983 without any provision for inflation or rising costs, and despite the hundreds of thousands of women, infants, and children who are on waiting lists for this program.

These are two examples of the Administration's practices directly contradicting its theory. How, Dr. Brandt, do you expect to ever reach the goals you have presented to us if the actions of the Federal Government continue to work against those goals?

Answer. The national health strategy I described in my testimony goes beyond what the Federal Government can achieve acting alone. The improvements in health care and health status that form the basis for the initiative demand efforts extending beyond federally sponsored programs. This is an important point to keep in mind when evaluating the scope and variety of programs and activities required to achieve our national goals. The individual and collective efforts of health professionals, business and industry, organized labor, educational institutions, voluntary organizations, and public officials at the local, State and national level are required if we are to realize these goals. State and local initiatives are particularly important to this effort as they are the best way to ensure that the programs undertaken as part of the initiative are tailored to the needs of specific populations. Thus, the national goals and objectives are really guideposts intended to shape and monitor public and private efforts at every level of society to improve the health of the American people. The appropriate role of the Federal Government is to lead, catalyze, and to provide strategic support for this effort. Success depends on our ability to forge a strong public-private partnership around common objectives. I am impressed with the progress that has already been made and am confident that we will achieve, if not surpass, our goals.

Question 2. Both the Senate and the House are considering legislation requiring more comprehensive health warnings on cigarette packages, including specific warnings concerning the hazards of smoking while pregnant. Would you support such legislation as a health promotion strategy?

Answer. As we have testified, smoking by a pregnant women presents a serious hazard to the life and well being of the fetus and the new baby. The Department has and this Administration continues to support the need for a stronger warning label.

Question 3. The (Title X) family planning program represents this Nation's major vehicle to prevent unintended childbearing, particularly among teenagers. Yet, this Administration has sought to weaken the program through budget cuts or by funding it through block grants where there would be no assurance that States would actually provide family planning services. Also, rules requiring parental notification for adolescents obtaining prescription contraceptives under the program were promulgated which, if they had not been blocked by the courts, would certainly have

inhibited thousands of adolescents from utilizing family planning services. And, recently the family planning program was removed from the Bureau of Health Care Delivery and Assistance, the traditional home of health care delivery programs, to the Office of Family Planning after assurances by the Administration that this would not happen. Can you explain why the Administration appears so determined to weaken the family planning program, which is so clearly designed to prevent problem pregnancies, especially among adolescents?

Answer. The Administration is strongly committed to providing family planning services to those who need and want them. Vigorous actions are being taken to ensure a strong Title X family planning program.

The block grant approach, proposed by the Administration in the fiscal year 1984 budget, would provide States with increased flexibility to plan, implement, and control health services in order to best meet their specific needs. This approach would enable the elimination of duplicative efforts, the increase the efficiency of service delivery, and the reduction of federally imposed burdens on the States. Furthermore, since family planning is clearly part of primary health care, the health of American women would be improved with an integrated health care program.

The reorganization of the family planning program was designed to consolidate those programs in the Public Health Service that are related to family planning, adolescent family life, and population affairs. The consolidation of these closely related programs has had a positive effect on each. It has led to greater management efficiencies by bringing the two operating programs—family planning and adolescent family life—under a single program manager, the Deputy Assistant Secretary for Population Affairs (DASPA). It has also eliminated the previous separation between the setting of overall policy in family planning and the operations which implement the policy. The reorganization placed the DASPA in charge of operations as well as policy oversight, thereby bringing the organization arrangement into conformance with statutory provisions regarding the DASPA's responsibility for administering family planning.

Question 4. While I applaud the unique collaboration of the public and private sectors in the "Healthy Mothers/Healthy Babies" Campaign, aren't you troubled by the fact that the services these women are being encouraged to utilize are, in fact, not available at a sufficient level to meet their needs?

Answer. First of all, what we are encouraging is proper counseling from resources which are already available and being utilized. We would like to see more emphasis by these providers and counselors on appropriate preventive techniques, especially those which can be undertaken by the patients themselves. Beyond that, it may well be that "demand" for services would be stimulated in some areas.

Because I know of no area more vital than prenatal care and associated prevention measures, I would not be surprised to learn that States and communities had adjusted their priorities to augment preventive services where they were insufficient. I would like to suggest that the Jobs Bill added significant resources to maternal and child health, primary care, and WIC appropriations so that unmet concerns about more resources have been addressed. For any medical or health need there is always more to be done. But I believe that our concern is evident in the efforts that have already been made to assure the availability and delivery of health care services in medically underserved areas and to special populations through our Bureau of Health Care Delivery and Assistance.

RESPONSES BY EDWARD N. BRANDT, JR., TO QUESTIONS FROM CONGRESSMAN MICKEY LELAND

Question 1. Dr. Brandt, at our first hearing in April, we heard from several witnesses about the link between teenage pregnancy and poverty. Clearly this committee has a responsibility to explore the roots of this tragic problem and to investigate possible solutions. It appears that the Department of Health and Human Services' priority in addressing teenage pregnancy is the Adolescent Family Life Act—one of the few programs for which the Department is requesting an increase this year. One of the major thrusts of this program is to deter adolescents from becoming sexually active. Can you describe the kinds of projects the Department has funded to achieve this goal?

Answer. The Department, through the Adolescent Family Life Program, is exploring a variety of approaches to encourage adolescents to defer sexual activity. In developing these preventive programs, we have been careful to take into consideration the developmental stage of the adolescent, as well as the influences of peers, the family, or the larger community upon them.

Projects represent a diversity of service providers and settings, including hospitals, universities, public schools, church organizations, community, health and human service agencies, and youth organizations in both rural and urban areas. Particular efforts are made to help parents communicate to their children the benefits of postponing early sexual activity.

Based upon recent research findings on effective ways of preventing early sexual activity among adolescents, the projects are trying to enhance the self-esteem and self-worth of teenagers, improve their decisionmaking skills and increase their ability to withstand any adverse peer pressures, and foster better career planning and personal achievement goals. These tasks for adolescents are achieved through a variety of different approaches such as improved curricula administered in agency and school settings and in-depth counseling in different organizations and settings.

Professionals working with parents and adolescents to reduce premarital sexual activity are also assisted by the Adolescent Family Life Program through the development of appropriate teaching and counseling materials, as well as the enhancement of their ability in communicating with them. Finally, drawing upon the concerted efforts of the adolescents, their families, concerned professionals, and volunteer community groups attempts are being made to project a more positive image of teenagers in the media and the local community which emphasize the benefits of postponing early sexual activity while facilitating the emotional and intellectual development of these adolescents.

Question 2. The Adolescent Family Life Act contains rigorous evaluation procedures. Is there any evidence, thus far, to indicate the success of the program?

Answer. Preliminary information does indicate that these projects are having positive effects. Many projects report that their efforts to get pregnant teenagers into their prenatal care programs earlier are succeeding and resulting in fewer complications at birth and a lower incidence of low birth weight babies. Most projects also report that more young women are staying in school due to the assistance provided by the Adolescent Family Life projects. Some projects report a dramatic increase in the number of young women choosing adoption. We are also encouraged that a countrywide program in the East is already able to report that unintended adolescent pregnancies are decreasing in their county while rates in surrounding counties are rising. Since these projects were funded last fall, the earliest the detailed evaluations will be available is the summer of 1984. However, the preliminary results from the projects themselves show major immediate improvements in the well being of young mothers and their children, as well as indicating that these programs are successful.

Question 3. Several months ago, it was learned—much to my distress, as well as my colleagues—that the Adolescent Family Life Act administrators had not awarded grants to minority organizations. Since adolescent pregnancy probems are prevalent to minorities, why haven't appropriate monies been channeled to minority organizations? It is my understanding that only one out of 60 or 65 grants went to an agency headed by an Hispanic. And this agency did not even represent the minority community. Out of an appropriation of $11 million, $10 million of which went to grant awards, I would imagine that someone could come up with an equitable methodology in allocating funds.

Answer. In fiscal year 1982, the Adolescent Family Life program funded a variety of demonstration projects under the sponsorship of minority organizations that are designed for the needs of minorities within the populations they serve. Examples of such projects are as follows: Norfolk State University (Norfolk, Virginia), a traditionally black institution that is providing family day care, parenting classes, and educational, health, and social services for pregnant adolescents and adolescent parents; Hill Health Corporaton (New Haven, Connecticut), a community-controlled health center with a comprehensive adolescent clinic and a family togetherness program; Economic Opportunity family Health Center (Miami, Florida), an ambulatory health care center providing both prevention and cae services to people residing in multi-family, low-income housing projects; Providence Ambulatory Health Care Foundation, Inc. (Providence, Rhode Island), a network of six ambulatory health care facilities providing services to the inner-city, low income, ethnic communities of Providence; Discovery Rooms for Children (New York, New York), a family community center providing an environment that fosters learning, growth, and development for the entire family; and Cities-In-Schools, (Washington, D.C.), a private, nonprofit organization addressing the needs of adolescent females and males, adolescent parents, and the parents of adolescents.

The Adolescent Family Life program, moreover, has many projects designed to address the needs of minorities within the populations served. Half of these projects serve primarily minority adolescents. They are as follows:

Women's Advocacy Bureau, Baton Rouge, La.
Hull House Association, Chicago, Ill.
Discovery Room for Children, New York, N.Y.
St. Mary's Human Development Center, Ridgeland, S.C.
Mt. Vernon Public Schools, Mt. Vernon, N.Y.
St. Ann's Infant Maternity House, Hyattsville, Md.
Family Hospital, Milwaukee, Wis.
Family Service Agency of San Francisco, San Francisco, Calif.
Child Opportunity Program, Denver, Colo.
Charles Henderson Child Health Center, Troy, Ala.
St. Margaret's Hospital, Dorchester, Mass.
Catholic Social Services of Wayne County, Detroit, Mich.
Green County Health Care, Snow Hill, N.C.
St. Mary's Hospital, Kansas City, Mo.
University of South Carolina, Columbia, S.C.
Providence Ambulatory Health, Providence, R.I.
Camden County Department of Health, Camden, N.J.
Tucson Unified School District No. 1, Tucson, Ariz.
Economic Opportunity Family Health Center, Miami, Fla.
YMCA of St. Petersburg, St. Petersburg, Fla.
Hill Health Corporation, New Haven, Ct.
State of Hawaii Department of Health, Honolulu, Hawaii.
Norfolk State University, Norfolk, Va.
Cities-In-Schools, Washington, D.C.
City of Gary, Ind.

Question 4. In 1978, Congress enacted a program to help pregnant adolescents and young parents. To the best of my knowledge, the evaluation of that program is still not available. Can you share with us whether the money spent through that program to help school-aged mothers overcome the handicaps of early pregnancy and parenthood has yielded results in terms of improved pregnancy outcomes, lower rates of school drop-out, reduced likelihood of welfare dependency, etc.?

Answer. In accordance with Title VII of PL 95-626, HHS contracted with an independent organization to conduct an evaluation of the Title VI programs for pregnant and parenting adolescents. The evalution study is in its last phase—the analysis of individual client data. It is expected that the study will be completed by the spring of 1984. However, the Department has been able to substantiate from individual project evaluations that these programs have helped school-age mothers overcome the handicaps of early pregnancy and parenthood and have resulted in improved pregnancy outcome, lower school drop-out rates, and decreased welfare dependency.

Data collected from the Johns Hopkins Hospital Adolescent Center, a Title VI grantee, support the effectiveness of comprehensive services such as early and continuing prenatal care, nutrition services continuing education, and job counseling. In a comparison with a control group this project showed decreasing welfare dependency and repeat pregnancies among adolescents they served. Caesarian sections were less frequent and perinatal deaths markedly less among the Hopkins adolescent mothers. More of these young mothers completed high school and established nuclear families. Evaluation of other projects revealed data similar to the Hopkins project.

Question 5. In my District alone, I represent Harris County in Houston, Texas, the pregnancy has been most alarming. Jefferson-Davis Hospital, which has more deliveries than any other hospital in each year, and thus may serve as some sort of a monitor, has felt this surge in teenage pregnancies. In 1977, 36.2 percent of all births were to teenage mothers ranging in age from 12 to 19 years. Nine percent were to mothers 16 and under. Thirty percent of the teenage mothers were having their second, third, fourth, or fifth child. In other words, thirty percent of the teen births were repeaters. There were three mothers who had their fifth child at age 19. These are truly babies having babies. How will the Adolescent Family Life Act or any other Administration program assist these children?

Answer. The Administration shares your deep concern about the high rates of unintended initial and repeat pregnancies among adolescents and the suffering that this inflicts upon the young mothers and children.

There are no simple or easy solutions to these difficult situations. The Adolescent Family Life Program is a new approach to the problem of adolesent pregnancy. It is designed to develop pregnancy care service models which are intended to alleviate the adverse consequences of early parenting for the young mother and child and discourage repeat pregnancies. By providing a variety of integrated and comprehen-

sive health and educational services such as prenatal and postnatal care, nutrition counseling, educational and vocational assistance, and adoption counseling and referral services for pregnant teenagers and young mothers and their children, these programs help adolescents to become productive and self-sufficient citizens.

The Adolescent Family Life Program also develops and tests new ways of reaching these adolescents in order to encourage them to postpone early sexual activity which so often leads to the consequences which you have detailed. The results of these Adolescent Family Life demonstration projects can then be used by local communities like Houston to help them further respond effctively to the problem of teenage pregnancy.

In addition, the Department operates a wide variety of programs which fund services to adolescents as part of a larger mission to provide services to a broader population. The major problems are as follows: The Maternal and Child Health block grant (Title V of the Social Security Act) which distributes funds to States to provide maternal, infant, and child health services to high risk, low-income people; the Social Services block grant (Title XX of the Social Security Act) which allocates money to the States. The States may use these funds to pay for a variety of social services including day care, child welfare, child protective programs, foster care, and family planning; the Primary Care and Preventive Health block grants (Title XIX of the Public Health Service Act) to the States which fund preventive health and primary care services for low-income people; Title X of the Public Health Service Act which distributes funds for family planning medical and counseling services to women in need of such services, particularly those women below 150 percent poverty; and Medicaid, Title XIX of the Social Security Act, authorizes matching funds to the States to pay for medical services to low-income people.

Question 6. Considering the alarming trend in the surge of teenage pregnancy, will the Administration continue its crusade in pushing for the enactment of the parental notification regulation (snitch rule), which requires the parents of minors to be notified that their children are obtaining prescription contraceptives? What is the objective of this rule—to double or triple our teenage pregnancy rate, which was over 1.5 millon in 1980 alone?

Answer. The parental notification regulations implement a 1981 amendment to Title X which requires projects supported by Title X to encourage family participation in the provision of family planning services. The regulations provide an opportunity for family involvement in an area in which health considerations make parental involvement particularly appropriate. The regulations strike a reasonable balance between the requirement of making federally funded family planning services available to adolescents and the requirement of encouraging family participation to the extent practical.

The Department carefully considered the assorted arguments raised regarding the effects on minors of the parental notification requirement. We are not convinced that these effects can reasonably be predicted at this time. The contention that the regulations will result in a large upswing in the number of teenage pregnancies is misguided. We believe estimates of the number of additional pregnancies likely to result have been exaggerated. The contraceptive practices of teenagers may also improve as the result of parental involvement, with teenagers paying greater attention to the health consequences of the various available methods of contraception. Also some teenagers may be persuaded through conversations with their parents to abstain from sexual activity, removing all health risks associated with such activity.

In sum, we believe that the congressional directive for family participation should be put into effect by the parental notification mechanism and that the opportunity this notification presents for parental involvement in decisions regarding the use by minors of prescription drugs and devices will, on balance, be of benefit to the minors subject to the rule.

Although the regulations were due to become effective on February 25, 1983, the Department has been restrained from implementing them by court orders.

Question 7. Few programs have had the success as has the WIC program in decreasing the infant mortality rate in this country. It is most alarming to learn that infant mortality statistics for the poor in the U.S. were no better than those in Honduras. A Boston study has estimated that malnutrition has substantially decreased within the two years of the inception of the WIC program. How can this Administration, with a clear conscience, support cuts in the WIC program?

Answer. The 1981 U.N. Demographic Handbook (published in 1983) shows Honduras as having incomplete registration of deaths. The Population Division of the United Nations estimates that Honduras had an infant mortality rate of 95.4 per 1,000 for 1975–80 (1981 U.N. Demographic Yearbook, Table 9, p. 294). This rate is considerably higher than any rate observed in the United States.

We defer to the Department of Agriculture on WIC questions.

Question 8. Several studies have come out recently showing a substantial increase in infant mortality in those areas hit seriously by the recession. Houston, Baltimore, Pittsburgh are just a few of the areas hard hit by these uncertain economic times. This Administration has attempted to deny the significance of these studies; i.e., OMB Director David Stockman at the National Press Club claimed such studies were biased. It is difficult to imagine how the Administration can deny the fact that in 1982, the infant mortality rate for all races was 11.2 per 1,000 births. For the last available figures, 11.4 was reported for whites and 21.8 for blacks. In my own District, infant mortality was 12.11 per 1,000. This is only a slight decrease from 1981 which reported a 13.74 rate. What programs are in effect at this time to deal with these startling figures?

Answer. The Administration is not denying the fact that the infant mortality rate in 1982 was 11.2 deaths per 1,000 births. This represents a 4 percent decline from the 1981 rate and is consistent with the downward trend that has been observed since the late 1960's. In 1980 (the latest year for which race-specific data are available) the black infant mortality rate was 21.4 compared to 11.0 for white infants. The Administration is certainly concerned about the disparity between the health of white and black infants but it must be pointed out that this disparity has existed ever since statistics have been available and is not due to the current recession. We have seen no convincing study which shows a substantial increase in infant mortality in areas hit seriously by the recession. The studies we have seen all suffer from serious methodological problems and inadequate statistical analyses of mortality rates for small areas. In fact, the data presented by Congressman Leland clearly illustrate some of these problems. The Congressman reports that the infant mortality rate in his District fell from 13.74 to 12.11 per 1,000 between 1981 and 1982, which is mistakenly characterized as "only a slight decrease." Over the past 15 years, infant mortality rates have been declining at about 5 percent per year. Yet, the decline in Congressman Leland's District was 11.9 percent, an unprecedented annual decline if it had occurred nationally. However, the reason for such a large decline is that the number of births and deaths upon which these rates are based are too small to permit stable estimates of the change between two years. These issues have been addressed in more detail in my testimony of March 14, 1983, to the Subcommittee on Rural Development, Oversight and Investigation, Committee on Agriculture, Nutrition and Forestry.

Question 9. Please provide infant mortality statistics of whites, blacks, Hispanics, and Asian Americans.

Answer. It is not possible to respond directly to the request for infant mortality statistics of Hispanics and Asian Americans. With respect to Asian Americans, although national infant mortality rates are reported, they are notoriously inaccruate due to differences in the way race is reported on the birth and death certificates. Certain States, such as California, which link birth and death records, may have more reliable rates for Asian Americans available since they can calculate rates based on race as recorded on the birth certificate.

However, national data are available on low birth weight, an important correlate of infant mortality. In 1980, the following proportions of live births were below 2,500 grams:

	Percent
All births	6.8
White	5.7
Black	12.5
American Indians	6.5
All Asian and Pacific Islanders	6.5
Chinese	4.9
Japanese	6.2
Filipino	7.4

In addition, data are available for 22 States by Hispanic parentage. For 1980, the following proportions of live births were below 2,500 grams:

	Percent
Total Hispanics	6.1
Mexicans	5.6
Puerto Ricans	8.9
Cubans	5.6
Central and South Americans	5.8
Other and Unspecified Hispanic	7.9

RESPONSE BY EDWARD N. BRANDT, JR., TO QUESTION FROM CONGRESSMAN THOMAS BLILEY

Question. The Centers for Disease Control (CDC) maintains statistics on certain key measurements of infants and children applying for WIC participation. Have these measurements shown any deterioration in the past year?

Answer. The CDC Coordinated Pediatric Nutrition Surveillance System collects data from the initial screening-examinations of infants and children from relatively low-income families enrolled in the WIC Program and other publicly supported delivery programs in 32 selected States. The data show there have been no increase in the prevalence of abnormal indicators during calendar year 1982. There has been a reduction in the prevalence of linear growth stunting, overweight, and anemia over the seven-year period from January 1976 through December 1982.

The results of the initial screening-examinations of approximately 200,000 children indicate the overall prevalence of linear growth stunting (low height-for-age) and of overweight (high weight-for-height) has declined slowly over the seven-year period from January 1976 through December 1982. The prevalence of growth stunting declined from approximately 9.5 percent to 8.5 percent and the prevalence of overweight declined from approximatley 8.5 percent to 7.5 percent during this period. The decline in prevalence was observed principally in infants under two years of age. Older children showed little consistent change in the prevalence of abnormal growth indicators. The four ethnic groups with sufficient representation in the surveillance system to be evaluated statistically (white, black, Hispanic, Native American) all shared in the decline in prevalence.

The prevalence of low weight-for-age and low weight-for-height remained at or below 5 percent. Since the cutoff for determining low values is the fifth percentile of the National Center for Health Statistics reference growth curves for American children, the children applying for WIC or other publicly supported service delivery programs in participating States do not have an abnormally high prevalence of low weight-for-age or low weight-for-height.

Similar evaluation of trends in anemia prevalence, based on initial screening results in approximatley 115,000 children, also indicated an overall downward trend—from approximatley 9 percent to approximatley 7 percent prevalence over the seven-year period. Trends in anemia were generally more viable than those in linear growth and overweight, but all ethnic groups showed the same overall pattern. Age group differences in anemia trends were not consistently observed.

The standards used to evaluate anemia prevalence are the fifth percentile for age and sex for hemoglobin or hematocrit, based on data from the 1971 National Health and Nutrition Survey (NHANES) conducted by the National Center for Health Statistics. Infants under six months of age are not included in the evaluation of anemia trends since data from the NHANES survey are not adequate to estimate percentile cutoffs for this age group.

The data tabulated cannot be taken as representative of U.S. children generally, but do represent the results of initial screening evaluations for infants and children from relativley low-income families enrolled in the WIC Program and other publicly supported service delivery programs in participating States.